ORDER NO. ARD83040232C8-18

Service Manual

Cassette Deck

RS-M245X

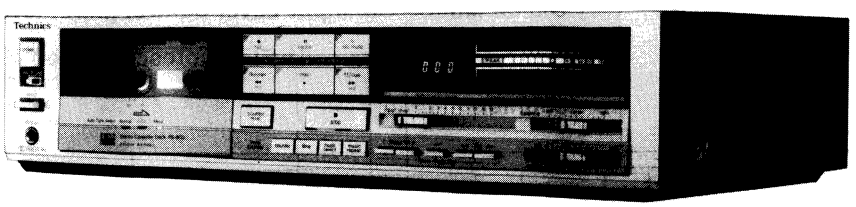
(Silver Face / Black Face)

dbx-Equipped Microprocessor Controlled Cassette Deck

DOLBY B•C NR

This is the Service Manual for the following areas.

- [N] ..... For Asia, Latin America, Middle East and Africa areas.
- [A] ..... For Australia.
- [F] ..... For Asian PX.
- [J] ..... For European PX.



RS-M245X in black is also available in some countries.

RS-M250 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8cm/s
Wow and flutter:	0.045% (WRMS)
Frequency response:	Metal tape; 20—20,000Hz 50—18,000Hz±3dB
	CrO_2 tape; 20—19,000Hz 50—17,000Hz±3dB
	Normal tape; 20—18,000Hz 50—16,000Hz±3dB
Dynamic range:	110dB (at 1kHz) with dbx* in
Max. input level improvement:	10dB or more improved with dbx in (at 1kHz)
Signal-to-noise ratio:	dbx in; 92dB Dolby** C NR in; 75dB (CCIR) Dolby B NR in; 67dB (CCIR) NR out; 57dB (Signal level = max. input level A weighted, CrO_2 type tape)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25mV applicable microphone impedance 400Ω—10kΩ LINE; sensitivity 60mV, input impedance 47kΩ or more
Outputs:	LINE; output level 400mV, output impedance 1.5kΩ or less HEADPHONES; output level 125mV (at 8Ω) applicable headphone impedance 8Ω—600Ω
Bias frequency:	80kHz
Heads:	2-head system 1-AX (AMORPHOUS) head for record/playback 1-double-gap ferrite head for erasure
Motor:	2-motor system
Power requirements:	AC; 110/125/220/240V, 50-60Hz Preset power voltage 240V
Power consumption:	[N][F][J]; 16W [A]; 22W
Dimensions:	43cm(W)×9.8cm(H)×27.3cm(D)
Weight:	5.1kg

Design and specifications are subject to change without notice.

*The term dbx is a registered trademark of dbx Inc.

**'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Technics

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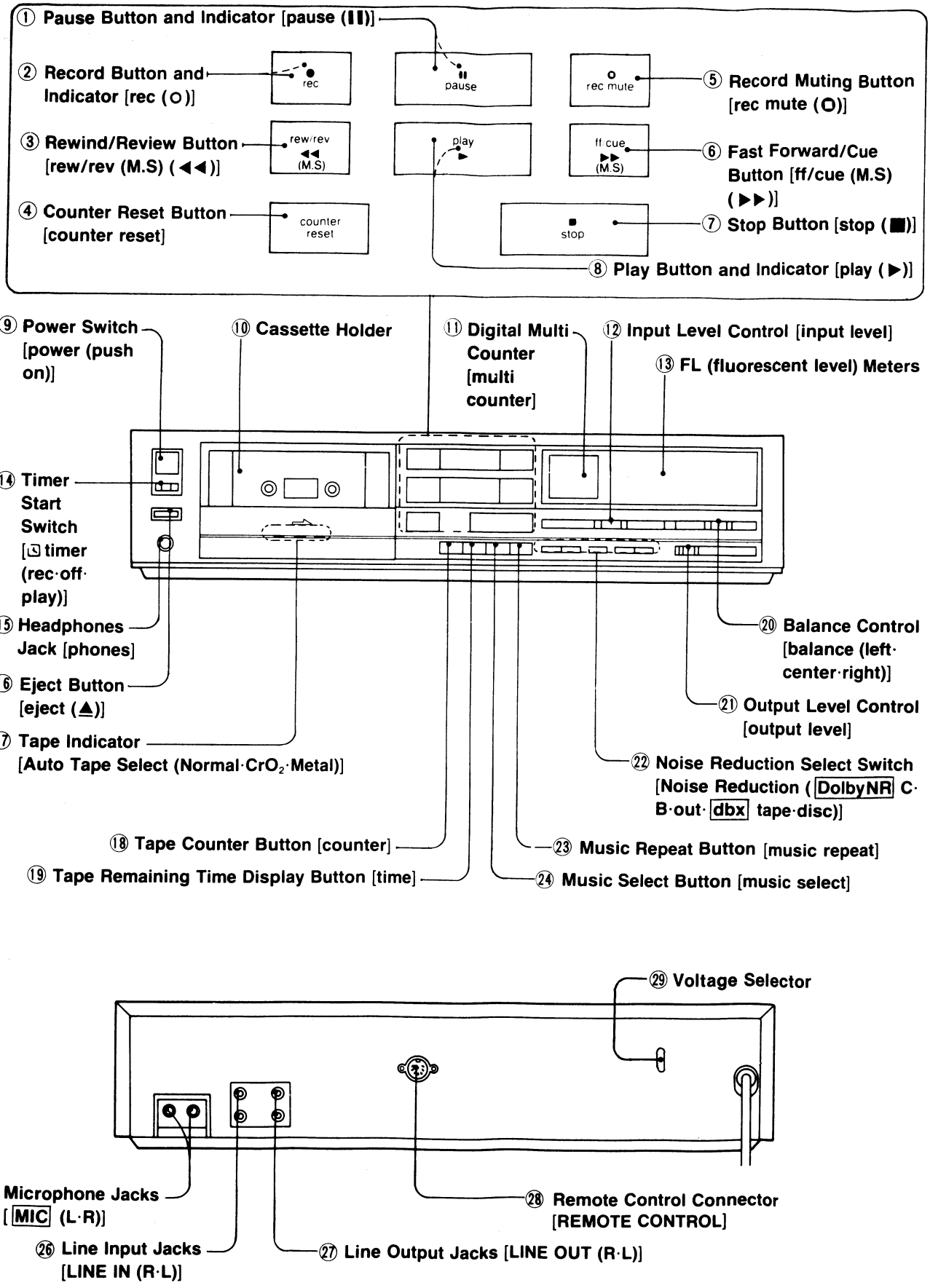
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS


① Pause Button and Indicator [pause (❚❚)]
② Record Button and Indicator [rec (O)]
③ Rewind/Review Button [rew/rev (M.S) (◀◀)]
④ Counter Reset Button [counter reset]
⑤ Record Muting Button [rec mute (O)]
⑥ Fast Forward/Cue Button [ff/cue (M.S) (▶▶)]
⑦ Stop Button [stop (■)]
⑧ Play Button and Indicator [play (▶)]
rec
pause
rec mute
rew/rev ◀◀ (M.S)
play ▶
ff/cue ▶▶ (M.S)
counter reset
stop
⑨ Power Switch [power (push on)]
⑩ Cassette Holder
⑪ Digital Multi Counter [multi counter]
⑫ Input Level Control [input level]
⑬ FL (fluorescent level) Meters
⑭ Timer Start Switch [timer (rec·off·play)]
⑮ Headphones Jack [phones]
⑯ Eject Button [eject (▲)]
⑰ Tape Indicator [Auto Tape Select (Normal·CrO2·Metal)]
⑱ Tape Counter Button [counter]
⑲ Tape Remaining Time Display Button [time]
⑳ Balance Control [balance (left·center·right)]
㉑ Output Level Control [output level]
㉒ Noise Reduction Select Switch [Noise Reduction (DolbyNR C·B·out·dbx tape·disc)]
㉓ Music Repeat Button [music repeat]
㉔ Music Select Button [music select]
㉕ Microphone Jacks [MIC (L·R)]
㉖ Line Input Jacks [LINE IN (R·L)]
㉗ Line Output Jacks [LINE OUT (R·L)]
㉘ Remote Control Connector [REMOTE CONTROL]
㉙ Voltage Selector

DISASSEMBLY INSTRUCTIONS

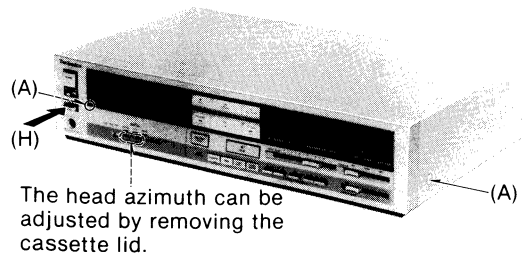


Fig. 1

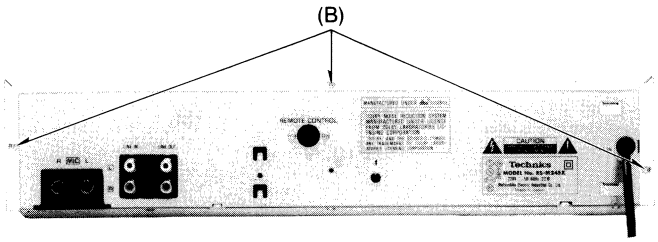
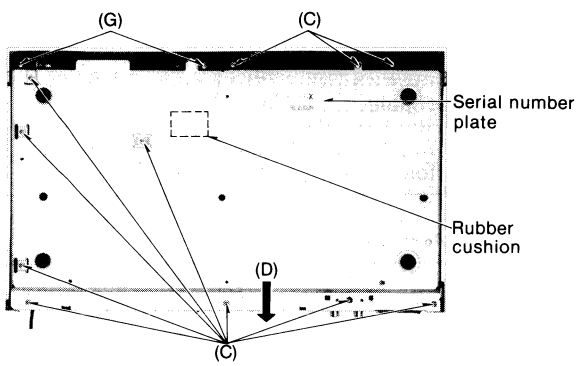


Fig. 2



NOTE:
When removing the bottom cover, do not allow the rubber cushion on the bottom cover to be trapped by the terminals of the electric components.

Fig. 3

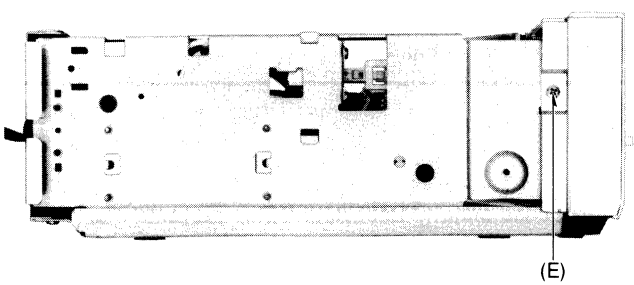


Fig. 5

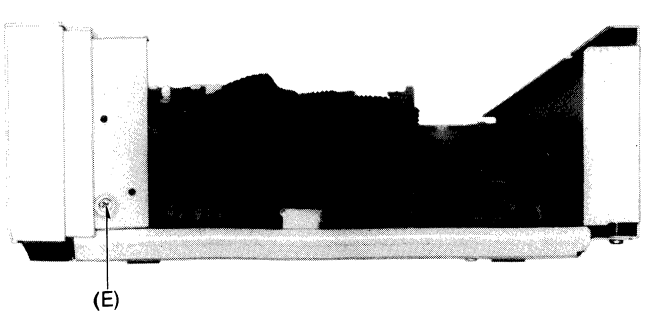
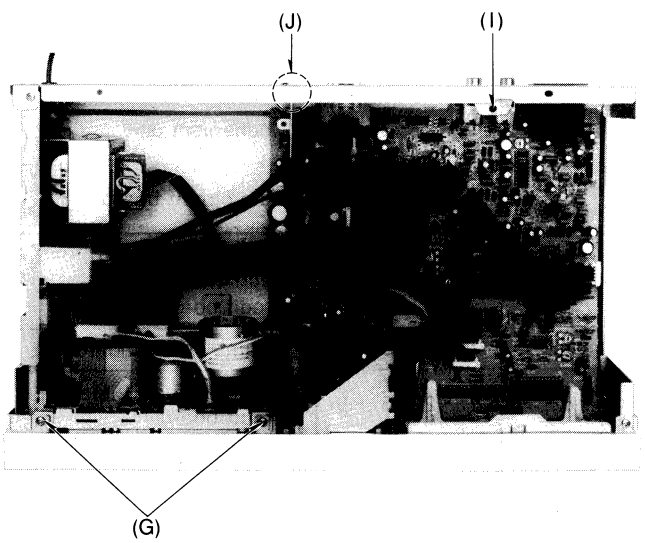
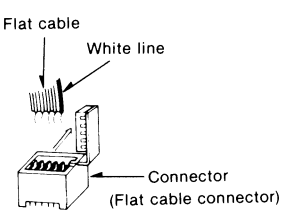


Fig. 6

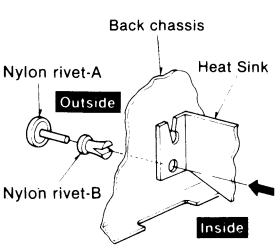


(F) How to remove flat cable



Open the lid of connector in the direction of the arrow as shown above, and extract the flat cable to disconnect.

(J) How to remove nylon rivet



To remove a heat sink from the back chassis, first press nylon rivet-A from the inside in the direction indicated by the arrow as shown above, and extract the rivet to the outside. Next remove nylon rivet-B from the outside. Consequently, the heat sink can be removed from the back chassis.

Fig. 4

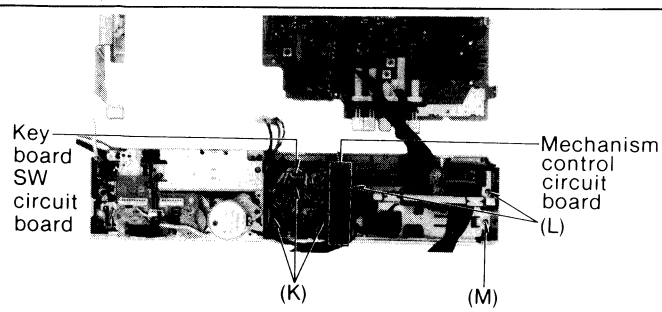


Fig. 7

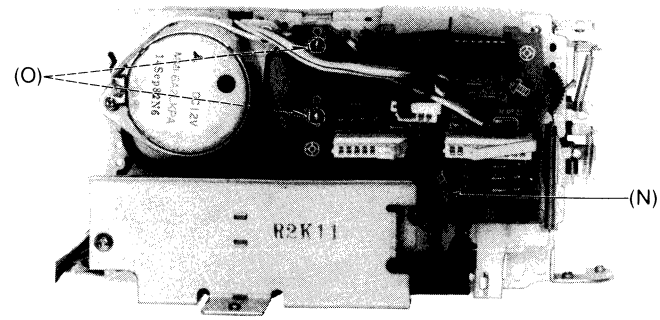


Fig. 8

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Case cover	• 2 ornament screws .....(A) • 3 screws .....(B)	1 2
2	2	Bottom cover assembly	• 11 screws .....(C) • As shown in fig. 3, pull bottom cover in the direction of arrow (D).	3
3	1 → 2 → 3	Front panel assembly and Mechanism unit	• 2 screws.....(E) • How to remove flat cable.....(F)	5, 6 4
4	1 → 2 → 3 → 4	Mechanism unit	• 4screws .....(G) • Push the eject button .....(H)	3, 4 1
5	1 → 2 → 3 → 5	Main circuit board	• 1 screw .....(I) • How to remove nylon rivet .....(J)	4 4
6	1 → 2 → 3 → 6	Key board SW and Mechanism control circuit board	• 3 screws .....(K)	7
7	1 → 2 → 3 → 7	Volume circuit board	• 2 screws.....(L)	7
8	1 → 2 → 3 → 8	FL Meter and FL Meter circuit board	• 1 screw .....(M)	7
9	1 → 2 → 3 → 9	Mechanism circuit board	• 1 screw .....(N) • Unsolder the soldered portion of the reel motor terminal (O)	8 8

*** Serial No. Indication.**

The serial number plate of this product is attached to the bottom cover (shown in Fig. 3).

OPERATING PRECAUTIONS

When the recorder is turned off during playback or music selection, the head base plate will not return. This prevents the cassette holder from opening. To open the cassette holder, turn on the recorder again (the head base plate will return) and press the EJECT button.

DISASSEMBLY NOTES

When the bottom cover is removed for repair, measurement, or adjustment, the grounds of the mechanism chassis, back chassis, and side panel must be disconnected.
Otherwise, the auto tape selector will not operate normally and noise will be generated. To prevent these problems, use a cord to connect the mechanism chassis and the ground of the main circuit board.

MEASUREMENT AND ADJUSTMENT METHODS

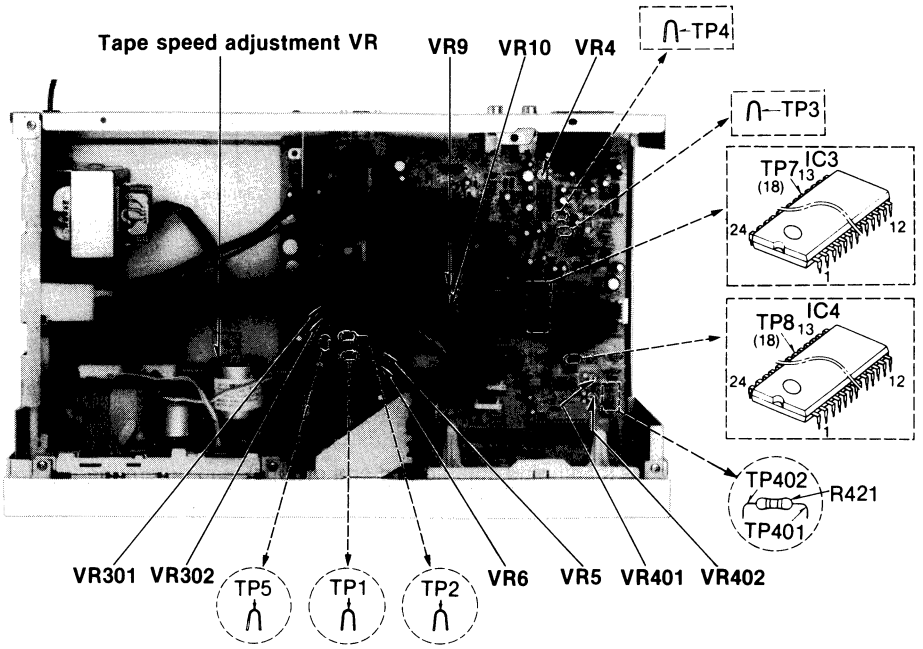


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)
- NR switch: OUT
- Timer start switch: OFF
- Input level controls: Maximum
- Output level control: Maximum
- Balance control: Center

Ⓐ Head azimuth adjustment

Condition:
- Playback mode
- Normal tape mode

Equipment:
- VTVM
- Oscilloscope
- Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

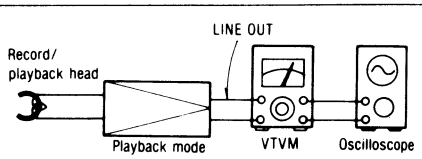


Fig. 2

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.
3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., and point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

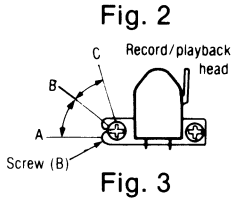


Fig. 3

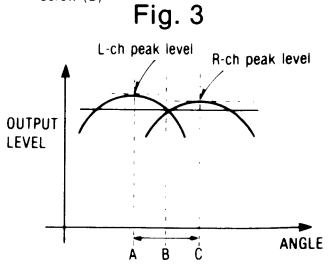


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two VTVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

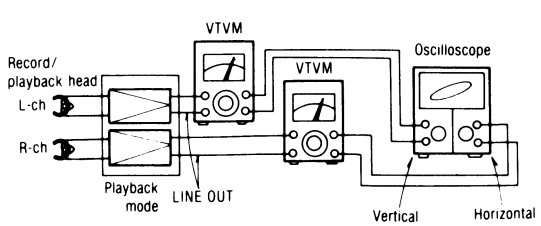


Fig. 5

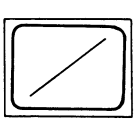


Fig. 6

Ⓑ Tape speed

Condition:
- Playback mode

Equipment:
- Digital frequency counter
- Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000Hz, determine value by following formula:

$$\text{Tape speed accuracy} = \frac{f-3{,}000}{3{,}000} \times 100(\%)$$ where, f = measured value

5. Take measurement at middle section of tape.

Standard value: ±1.5%

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR shown in Fig. 1.

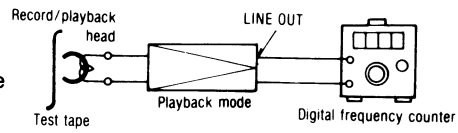


Fig. 7

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1-f_2}{3{,}000} \times 100(\%)$$ f_1 = maximum value, f_2 = minimum value

Standard value: Less than 1%

NOTE:

Use non metal type screwdriver when you adjust tape speed on this unit.

Ⓒ Playback frequency response

Condition:
- Playback mode
- Normal tape mode
- Output level control...MAX

Equipment:
- VTVM
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM).
3. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart. (Shown in fig. 8).

Playback frequency response

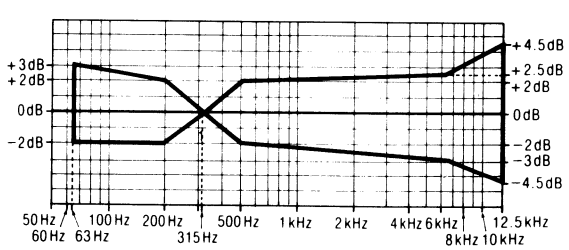


Fig. 8

Ⓓ Playback gain

Condition:
- Playback mode
- Normal tape mode
- Output level control...MAX

Equipment:
- VTVM
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using VTVM, measure the output level at test points [TP7 (L-CH), TP8 (R-CH)].
3. Make measurements for both channels.

Standard value: 0.28V [0.38±0.05V: at LINE OUT jack]

Adjustment

1. If the measured value is not within the standard adjust VR9 (L-CH) or VR10 (R-CH) (See fig. 1).
2. After adjustment, check "Playback frequency response" again.

Ⓔ Erase current

Condition:
- Record mode
- Metal tape mode

Equipment:
- VTVM
- Oscilloscope

1. Test equipment connection is shown in fig. 9.
2. Place UNIT into metal tape mode.
3. Press the record and pause buttons.
4. Read voltage on VTVM and calculate erase current by following formula:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R301}}{1\,(\Omega)}$$

Standard value: 155±15mA (Metal)

5. If the measured value is not within the standard value adjust it by following the adjustment instructions.

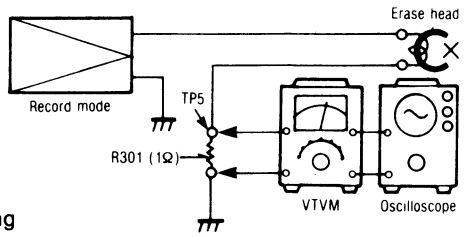


Fig. 9

Adjustment
If the erase current is less than 140mA, open the point (A).

Ⓕ Overall frequency response

Condition:
- Record/playback mode
- Normal tape mode
- CrO_2 tape mode
- Metal tape mode
- Input level control...MAX
- Output level control...MAX
- Balance control...Center

Equipment:
- VTVM
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)
  ...QZZCRA for Normal
  ...QZZCRX for CrO_2
  ...QZZCRZ for Metal

Note:
Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 10.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is −20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 11).
   (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)
   If the curve is not within the charted specifications, adjust as follows;

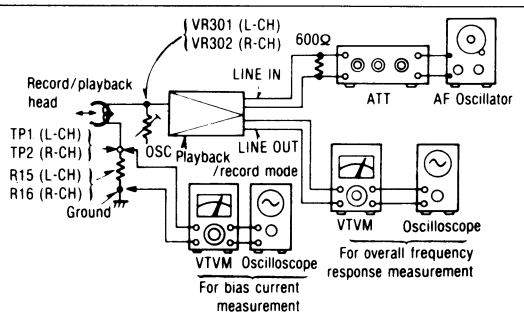


Fig. 10

Overall frequency response chart (Normal)

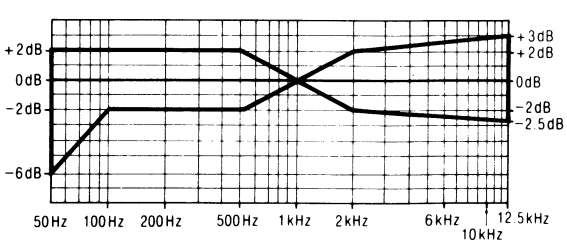


Fig. 11

Adjustment (A):
When the curve exceeds the overall specified frequency response chart (fig. 11) as shown in fig. 12.

1) Increase bias current by turning VR301 (L-CH) and VR302 (R-CH).
   (See fig. 1 on page 8.)
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 11.)
3) If the curve still exceeds the specifications (fig. 11), increase bias current further and repeat steps 5 and 6.

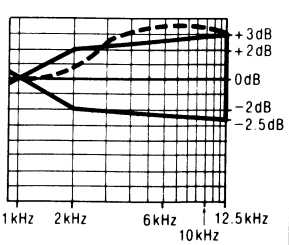


Fig. 12

Adjustment (B):
When the curve falls below the overall specified frequency response chart (fig. 11) as shown in fig. 13.

1) Reduce bias current by turning VR301 (L-CH) and VR302 (R-CH).
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 11.)
3) If the curve still falls below the charted specifications (fig. 11), reduce bias current further and repeat steps 5 and 6.

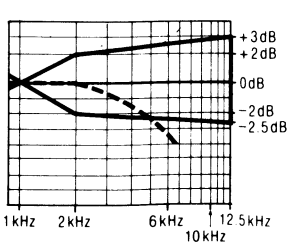


Fig. 13

7. Place UNIT into CrO_2 tape mode.
8. Change test tape to CrO_2 reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO_2 tapes (fig. 14).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.
    • Read voltage on VTVM between ground and test point (TP1 for L-CH, TP2 for R-CH) and calculate bias current by following formula:

$$\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$$

Standard value: **around 200μA (Normal position)**
around 250μA (CrO_2 position)
around 380μA (Metal position)

Overall frequency response chart (CrO_2, Metal)

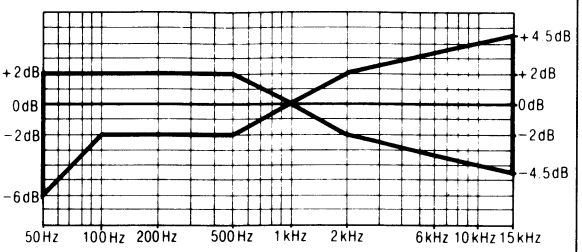


Fig. 14

G Overall gain

Condition:
- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Output level control...MAX
- Balance control...Center
- Standard input level;
  MIC .....−72±4dB
  LINE IN .....−24±4dB

Equipment:
- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape) ...QZZCRA for Normal

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (−24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes 0.38V.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.38V.
7. If measured value is not 0.38V±2dB, adjust it by using VR5 (L-CH) or VR6 (R-CH).
8. Repeat from step (2).

Standard value: 0.38V−2dB (300mV)—0.38V+2dB (480mV)

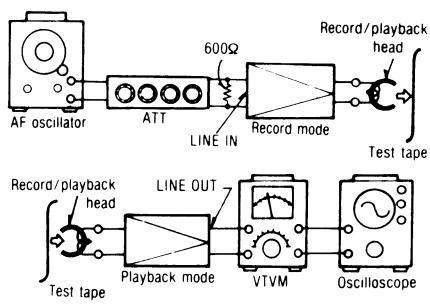


Fig. 15

H Fluorescent meter

Condition:
- Record mode
- Input level control...MAX
- Output level control...MAX
- Balance control...Center

Equipment:
- VTVM
- ATT
- AF oscillator

• Check for FL meter

To check the accuracy of the FL meter, measure the output level at LINE OUT.

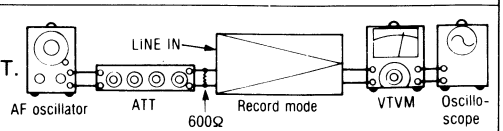


Fig. 16

1. Make connections as shown (See fig. 16).
2. Connect a wire between TP401 and TP402 terminal (See fig. 17).
3. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
4. Adjust ATT so that output level at LINE OUT is 0.38V

Checking FL meter 0dB segment display ON/OFF

Change the output level at LINE OUT from 0.38V −1dB (≒340mV) to 0.38V + 1dB (≒430mV) by adjusting the attenuator, and check that the FL meter 0dB segment display OFF state changes to the ON state.

Checking FL meter −40dB segment display ON/OFF

Lower the signal level 28dB below the standard input level (−24dB−28dB = −52dB≒2.5mV) and then further lower the level 12dB (−52dB−12dB = −64dB≒0.63mV) by adjusting the attenuator. While lowering the level as described above, make sure that only the −40dB display remains lit then dims or goes off at the lowest level.

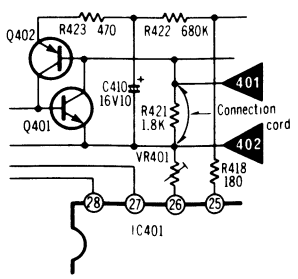


Fig. 17

• Adjustment for FL meter

1. Make connections as shown (See fig. 16).
2. Connect a wire between TP401 and TP402 (See fig. 17).
3. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
4. Adjust ATT so that output level at LINE OUT is 0.38V.

−40dB adjustment

5. Adjust ATT so that the level adjusted at step 4 is reduced by 40dB.
6. At this time, check that −40dB indicator is dimmed (intermediate brightness between full brightness and light-out: See fig. 18).
7. If the indicator is not lighted halfway as described in step 6, adjust VR402 .

0dB adjustment

8. Restore the condition of step 4 (set output level to 0.38V at LINE OUT.
9. At this time, check that 0dB indicator is dimmed (intermediate brightness between full brightness and light-out (See fig. 19).
10. If improper, adjust VR401.
11. Repeat adjustments at steps 4, 5, 6, 7, 8, 9 and 10 two or three times.
12. Disconnect the wire between TP401 and TP402 terminal, which had been connected at step 2.

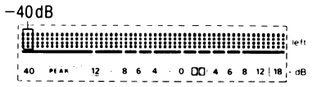


Fig. 18

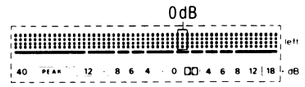


Fig. 19

❶ Dolby NR circuit

Condition:
- Record mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch...B/C
- Input level control...MAX
- Output level control...MAX
- Balance control...Center

Equipment:
- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)

Record side

• Check of the Dolby-B type encoder characteristics

1. Make connections as shown in fig. 20.
2. Set the unit to the record mode. (NR select switch is OUT.)
3. Apply a 1kHz signal to LINE IN.
4. Adjust the ATT so that the output level at TP7 (L-CH) and TP8 (R-CH) is 12.3mV.
5. The output level at pin 14 should be 0dB.
6. Set the NR select switch to B, and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +6dB±2.5dB.
7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 14 should be 0dB.
8. Set the NR select switch to B and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +8dB±2.5dB.

• Check to Dolby-C type encoder characteristics

9. Repeat steps 1-5 above.
10. Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +11.5dB±2.5dB.
11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 14 should be 0dB.
12. Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +8.5dB±2.5dB.

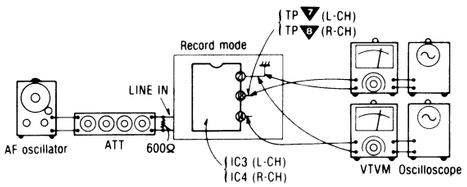


Fig. 20

❷ Attack recovery time adjustment (dbx circuit)

Condition:
- Record mode
- Input level control...MAX
- Output level control
- Balance control...Center
- Noise reduction selector ...dbx tape

Equipment:
- VTVM
- ATT
- AF oscillator
- DC voltmeter

1. Make the connections as shown in fig. 21 and apply 1kHz −27dB signal from LINE IN, and set the noise reduction selector to dbx tape position.
2. Set the unit to record mode, adjust ATT so that the signal level at C97 (L-CH) and C98 (R-CH) is 300mV.
3. Read voltage on DC volt meter.

   Reference value: 15±0.5mV

4. If measured value is not within reference, adjust VR4 (shown in fig. 1).

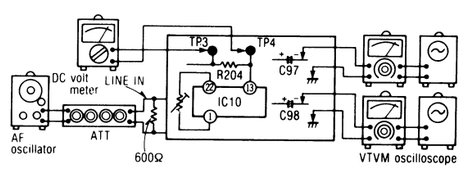
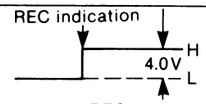
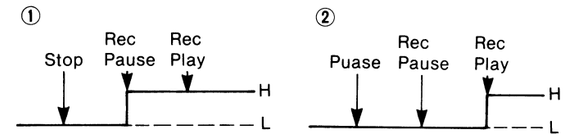
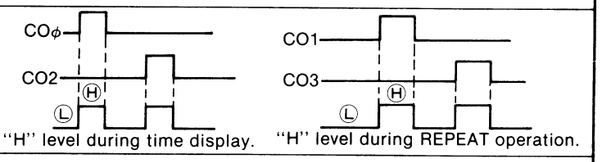
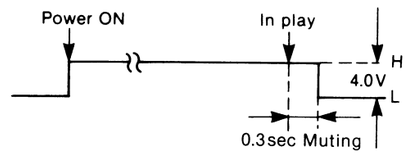
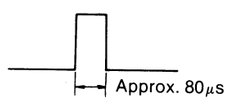


Fig. 21

MN1405RMB (IC601) EACH TERMINAL FUNCTION AND WAVEFORM

NOTE: When the microcomputer does not operate, check terminal ㉚ for presence of the reference signal. The microcomputer starts operation only after the signal is applied to terminal ㉚

Terminal No.	Symbol	Name	Function/operation
1.	VSS	GND	
2.	CŌ11	REC indication R/P selector	 "H" level simultaneously with REC indication. "H" level immediately after power is ON in TIMER REC mode. "H" level held if in TIMER REC position, when STOP AUTO RESET mechanism operates.
3.	CŌ10	Bias oscillation	
4.	CŌ9	TIMER OUT Repeat indication	 "H" level during time display. "H" level during REPEAT operation.
5.	CŌ8	No connection	Not used.
6.	CŌ7	Muting	 "L" level 0.3 second after "PLAY" finish. "H" level in PAUSE, FF, REW STOP. "L" level approx. 0.4 second after "REC PAUSE" is switched to REC. "L" level approx. 0.4 second after command in case PAUSE mode is set to REC command. Approx. 0.2 second after the CUE/REVIEW operation, the signal goes to "L" level.
7.	CŌ6	TIMER REC•PLAY Signal output	 Becomes "H" level only when power is supplied.

Terminal No.	Symbol	Name	Function/operation
8.	CO5	PLAY indication	Play indication 2.3V H L "H" level simultaneously with PLAY indication. Same as the above for TIMER PLAY.
9.	CO4	PAUSE indication	Pause indication 4.0V "H" level simultaneously with PAUSE indication.
10.	CO3	FL grid & input SW. scan	ON-cycle 9msec t_1 t_5 COϕ ON OFF t_2 t_6 CO1 t_3 CO2 t_7 t_4 CO3 t_8 Approx 2.25msec
11.	CO2	FL grid & input SW. scan	
12.	CO1	FL grid & input SW. scan	
13.	COϕ	FL grid & input SW. scan	
14.	A13	Input switch state reading	Reads switch states corresponding to scanning of COϕ — 3 (this terminal is connected to the accidental erasing protection leaf switch (S501), HALL IC, music select switch (S612) and tape counter switch (S610)).
15.	A12	Input switch state reading	Reads switch states corresponding to scanning of COϕ — 3 (when the mode leaf switch (S502) is ON, this terminal is connected to the repeat switch (S613), and timer switch (S609)).
16.	A11	Input switch state reading	Reads switch states corresponding to scanning of COϕ — 3 (when the play leaf switch (S504) is ON, this terminal is connected to the REC MUTE switch (S602)).
17.	A1ϕ	Input switch state reading	Reads switch states corresponding to scanning of COϕ — 3 (when the stop leaf switch (S503) is ON, this terminal is connected to the counter reset switch (S601).
			Operation example Counter reset switch (S601) and stop switch (S503) are connected to A10. If only S503 is closed, the waveform is as follows: Approx. 2.2msec When counter reset switch (S601) is also closed: HALL IC output, music select switch (S612) and tape counter switch (S610) are connected to A13. If all switches are OFF, the following waveform is obtained in FF or REW mode. Reel table rotation pulses

Terminal No.	Symbol	Name	Function/operation
18.	Bi3	REW key switch	Push the switch. 5.0V "H" in the normal case, "L" when the switch is pushed.
19.	Bi2	FF key switch	
20.	Bi1	PLAY key switch	
21.	Biϕ	STOP key switch	
22.	EOϕ	Brake plunger	FF indication Stop indication 3.0V H L "H" during FF/REW operations.
23.	EO1	Trigger plunger	Indication 3.0V H L Approx 70ms. "H" until mode switch (S502) is closed after the input to switch the mechanism, such as PLAY, PAUSE, STOP, etc. has been applied. (Approx. 70ms. depending on the mechanism condition.)
24.	EO2	Motor CL	Indication 2.0V Approx 250msec "H" until mode switch (S502) is changed from "close" to "open" following the indication that the mechanism mode has been changed. REW indication 2.0V "H" in REW operation.
25.	EO3	Motor UNCL	Same as the above in MODE conversion. "H" during FF (Cue).
26.	TST	Chip test	Connected to GND.
27.	RST	RESET	Computer's RESET terminal. Reset is less than 0.8V. 5.0V VDD 4.8V RST Approx 0.2sec Power ON
28.	CSLCT	CSLCT	Connected to GND.
29.	SNSϕ	Input switch state reading	Reads switch states corresponding to scanning of COϕ — 3. (This terminal is connected to the record switch (S607), PAUSE switch (S608) and switch detecting pulses between signal portions.)

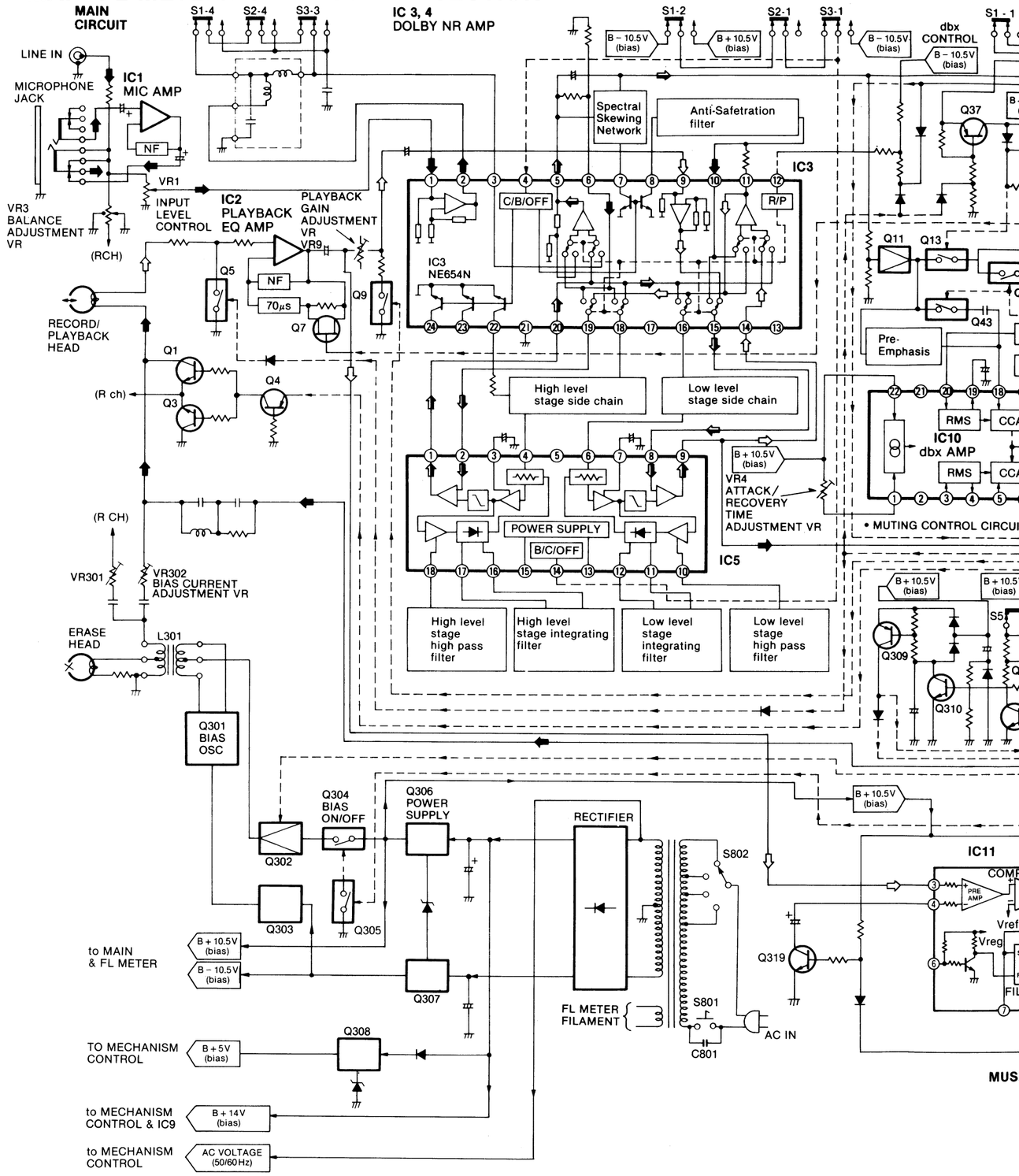
Terminal No.	Symbol	Name	Function/operation
30.	SNS1	Reference signal reading	Time count reference signal: 50/60 Hz
31. 32. 33. 34. 35. 36. 37.	DOϕ DO1 DO2 DO3 DO4 DO5 DO6	FL counter Segment a FL counter Segment b FL counter Segment c FL counter Segment d FL counter Segment e FL counter Segment f FL counter Segment g	Number indication Segment g (37) Segment a (31) Segment f (36) Segment b (32) Segment e (35) Segment c (33) Segment d (34) 5 V ON 0 V OFF Running indication Segment g Segment e Segment c Segment d Counter number changes when takeup reel table rotates two turns. Each segment of running indication changes when the reel table rotates a half turn. Waveforms change since dynamic lighting is used.
38.	DO7	No connection	Not used.
39.	VDD	Power source	Operated at 4.5 V to 6.0 V.
40.	OSC	Oscillation terminal	5 V 0 V Approx. 1.6 sec Oscillation is approx. 600 kHz. Because the connection of a probe affects the terminal, nothing should be connected to this terminal for any other measurements. Use COϕ to 3 in measuring the computer's velocity; Approx. 110 Hz in STOP condition.

NOTES:

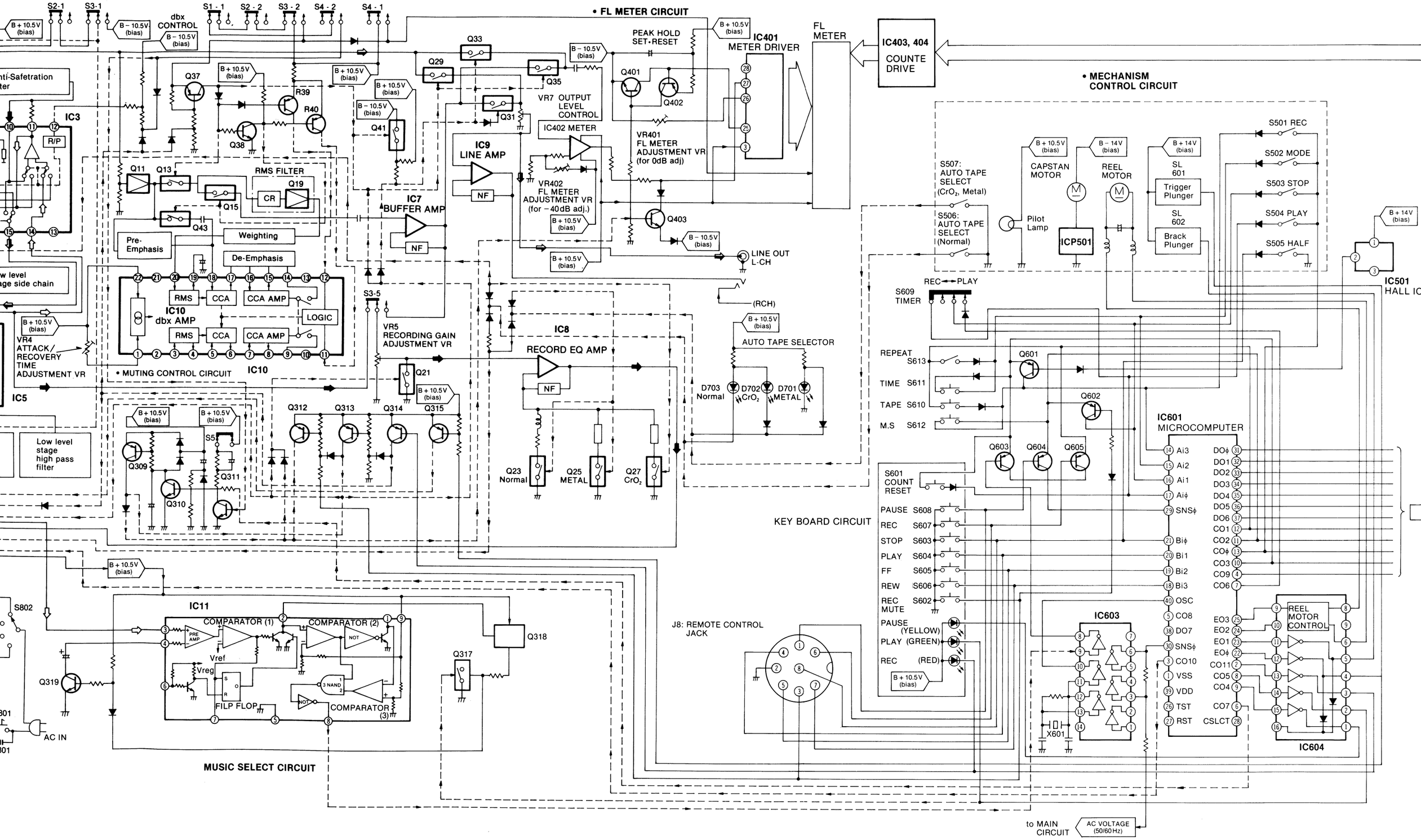
- S1 .....Dolby-C IN/OUT SWITCH (OUT)
- S2 .....Dolby-B IN/OUT SWITCH (OUT)
- S3 .....dbx TAPE IN/OUT SWITCH (OUT)
- S4 .....dbx disc IN/OUT SWITCH (OUT)
- S5 .....NR MUTE SWITCH
- S501 .....REC INHIBIT SWITCH
- S502 .....MODE SWITCH
- S503 .....STOP SWITCH
- S504 .....PLAY SWITCH
- S505 .....HALF SWITCH
- S506 .....AUTO TAPE SELECT SWITCH (Normal)
- S507 .....AUTO TAPE SELECT SWITCH (Metal, CrO_2)
- S601 .....COUNTER RESET SWITCH
- S602 .....REC MUTE SWITCH
- S603 .....STOP SWITCH
- S604 .....PLAY SWITCH
- S605 .....FF SWITCH
- S606 .....REWIND SWITCH
- S607 .....RECORD SWITCH
- S608 .....PAUSE SWITCH
- S609 .....TIMER SWITCH
- S610 .....TAPE COUNTER SWITCH
- S611 .....TIME COUNTER SWITCH
- S612 .....MUSIC SELECT SWITCH
- S613 .....MUSIC REPEAT SWITCH
- S801 .....POWER ON/OFF SWITCH
- S802 .....AC POWER VOLTAGE SELECT SWITCH
- (▬▶) this arrow indicates the flow of the recording signal. (NR OUT)
- (▭▶) this arrow indicates the flow of the playback signal. (NR OUT)
- (▬▶) this arrow indicates the flow of the playback and recording signal in combination. (NR OUT)
- (--▶--) this arrow indicates the flow of the control signal.

BLOCK DIAGRAM

• MAIN/FL METER/POWER SUPPLY SECTION



• MECHANISM CONTROL SECTION



Q11	
B	2.57V disc 2.54V tape 2.54V (2.57V)
E	1.98V disc 1.94V (1.93V) tape 1.94V (1.98V)
C	5.30V disc 5.30V (5.29V) tape 5.30V

Q12	
B	2.55V disc 2.52V (2.51V) tape 2.52V (2.55V)
E	1.95V disc 1.91V tape 1.92V (1.95V)
C	5.30V disc 5.30V (5.29V) tape 5.30V

Q13	
B	−0.03V disc 0.03V tape 2.60V (2.59V)
E	1.93V (1.92V) disc −0.03V tape 1.93V (1.92V)
C	1.98V disc 1.98V tape 1.94V (1.98V)

Q14	
B	−0.03V disc 2.57V (2.57V) tape 2.58V (−0.03V)
E	1.96V (1.95V) disc 1.91V (1.90V) tape 1.91V (1.95V)
C	1.95V disc 1.91V tape 1.92V (1.95V)

Q15	
B	2.58V (2.57V) disc 0.06V tape 0.06V (2.57V)
E	1.93V (1.92V) disc 1.94V (1.93V) tape 1.94V (1.92V)
C	1.93V (1.92V) disc 1.93V tape 1.90V (1.92V)

Q16	
B	2.60V disc 0.06V tape 0.005V (2.60V)
E	1.95V disc 1.90V tape 1.91V (1.95V)
C	1.96V (1.95V) disc — tape —

Q17	
B	2.89V (2.88V) disc 2.88V tape 2.88V
E	2.29V disc 2.29V tape 2.29V
C	5.30V disc 5.29V tape 5.29V

Q18	
B	2.87V disc 2.87V tape 2.87V
E	2.29V disc 2.29V tape 2.29V
C	5.30V (5.29V) disc 5.29V tape 5.29V

Q19	
B	2.30V (2.29V) disc 2.29V tape 2.29V
E	1.68V disc 1.68V (1.67V) tape 1.68V
C	5.30V (5.29V) disc 5.29V tape 5.29V

Q20	
B	2.29V disc 2.29V tape 2.29V
E	1.68V disc 1.68V tape 1.68V
C	5.30V disc 5.29V tape 5.29V (5.30V)

Q39	
B	4.67V disc 8.62V (8.57V) tape 9.23V (4.67)
E	5.30V disc 5.30V (5.29V) tape 5.30V
C	5.30V (5.29V) disc 0V (0.002V) tape 0V (5.29V)

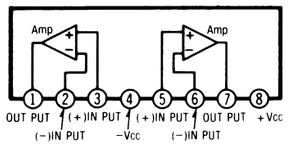
Q40	
B	7.82V (7.78V) disc 4.67V tape 4.67V (7.77V)
E	5.30V disc 5.30V (5.29V) tape 5.30V
C	0.003V (0.002V) disc 5.29V tape 5.29V (0.002V)

Q43	
B	2.64V disc 0.06V tape 0.06V (2.64V)
E	1.99V disc 0V tape 0.001V (1.99V)
C	1.99V disc 1.95V tape 1.96V (1.99V)

Q44	
B	2.61V disc 0.06V tape 0.06V (2.61V)
E	1.97V disc 0V tape 0.001V (1.97V)
C	1.97V disc 1.93V (1.92V) tape 1.93V (1.97V)

EQUIVALENT CIRCUIT

IC1, 2, 7, 8, 9 M5218L



NOTES:

- S1-1—S1-4 .....Dolby-C IN/OUT switch (shown in out position).
- S2-1—S2-4 .....Dolby-B IN/OUT switch (shown in out position).
- S3-1—S3-6 .....dbx tape IN/OUT switch (shown in out position).
- S4-1, S4-2.....dbx disc IN/OUT switch (shown in out position).
- S5.....NR Mute switch (shown in OFF position).
- S801.....Power ON/OFF switch (shown in OFF position).
- S802.....AC power voltage select switch.
- VR1, 2 .....Input level control.
- VR3 .....Channel balance control.
- VR4 .....Attack recoverly time adjustment VR.
- VR5, 6 .....Recording gain adjustment VR.
- VR7, 8 .....Output level control.
- VR9, 10 .....Playback gain adjustment VR.
- VR301, 302 .....Bias current adjustment VR.
- Point (A) .....Erase Current adjustment point.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1K = 1,000(Ω), 1M = 1000k(Ω).
- Capacity are in micro-farads (μF) unless specified otherwise.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.

* Output level control...MAX
* Input level control ...MAX
* Balance control .....Center

SPECIFICATIONS

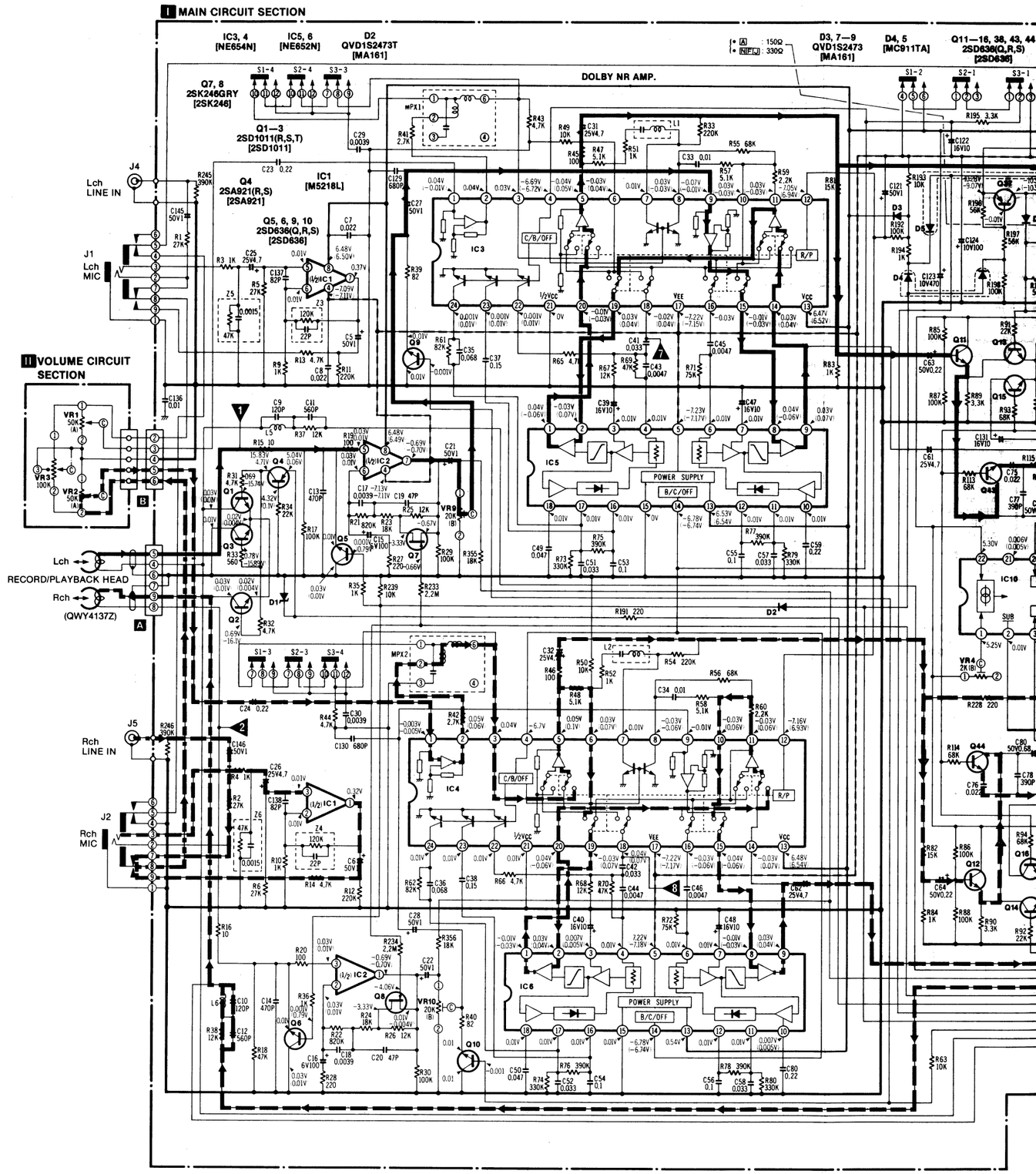
Playback S/N ratio * Test tape...QZZCFM	Greater than 45dB
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO_2 ...QZZCRZ for Metal	Less than 4%
Overall S/N ratio *Test tape...QZZCRA	Greater than 43dB (without NAB filter)

No mark .....Voltage values at OUT (NR select switch) mode.
( ) .....Voltage values at record mode.
disc .....Voltage values at dbx disc mode.
tape .....Voltage values at dbx tape mode.
For measurement use VTVM.

- (▬) indicates B+ (bias).
- (▪▪▪) indicates B− (bias).
- (▬▶) indicates the flow of the playback signal. (NR out).
- (▪▪▶) indicates the flow of the recording signal. (NR out).
- (▨▶) indicates the flow of the playback signal. (dbx tape or dbx disc)
- (▩) indicates the flow of the record signal. (dbx tape)
- Described in the schematic diagram are two types of numbers; the supply parts numbers and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.
  e.g. Q1
  2SC1844(E, F)◀—Production parts number
  [2SC1844E]◀—Supply parts number
  D212
  1S2473T77◀—Production parts number
  [MA161]◀—Supply parts numbers
- The supply parts number is described alone in the replacement parts list.

• This schematic diagram may be modified at any time with the development of new technology.

SCHEMATIC DIAGRAM



4 5 6 7 8 9 10 11 12 13

NOTE:
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

D3, 7—9 QVD1S2473 [MA161] | D4, 5 [MC911TA] | Q11—16, 38, 43, 44 2SD636(Q,R,S) [2SD636] | IC10 [AN6291] | D10 MA1051MTA [MA1051M] | Q37, 39, 40 2SB641(Q,R,S) [2SB641] | Q19, 20 2SD636(Q,R,S) [2SD636] | Q41 2SD636(Q,R,S) [2SD636] | D12, 21—24 QVD1S2473T [MA161] | Q29—36 2SJ105GRYTA [2SJ105GR] | Q23, 24 2SB641(Q,R,S) [2SB641] | Q25—28 2SD636(Q,R,S) [2SB636] | D14—17 QVD1S2473T [MA161] | D308 [MC921TA]

dbx AMP.

IC8 REC. EQ. AMP.
IC9 HEAD PHONES AMP.

TO FL METER CIRCUIT

III LED CIRCUIT SECTION
D701 [LN416YP]
D702 [LN316GP]
D703 [LN216RP]

IV HEADPHONES SECTION

TO MECHANISM CONTROL CIRCUIT

MUTING CONTROL

IC11 [BA336]

Q317, 319 2SD636(Q,R,S) [2SD636]

Q17, 18 2SD661(R,S,T) [2SD661] | Q21, 22 2SD636(Q,R,S) [2SD636] | IC7—9 [M5218L] | D20 [MC911TA] | D307 MA1068MTA [RVDR6R8EB] | Q308 [2SD1275] | MA1062MTA [RVDRD6R2EB] | Q316, 317, 319 2SD636(Q,R,S) [2SD636] | Q318 2SB641(Q,R,S) [2SB641]

ERASE HEAD (QWY2138Z)

BIAS OSC.

D1 MA1056MTA [MA1056] | Q301 2SD1225RM [2SD1225] | Q302 2SD638(R,S) [2SD638] | Q303, 304 2SB641(Q,R,S) [2SB641] | Q305 2SD636(Q,R,S) [2SD636] | Q306 2SD1265P [2SD1265] | D301 MA1220MTA [MA1220M] | Q307 2SB941PQ [2SB941]

Point (A)

POWER SUPPLY

Q318 2SB641(Q,R,S) [2SB641]

D317 QVD1S2473T [MA161]

V POWER TRANSFORMER SECTION

AC IN

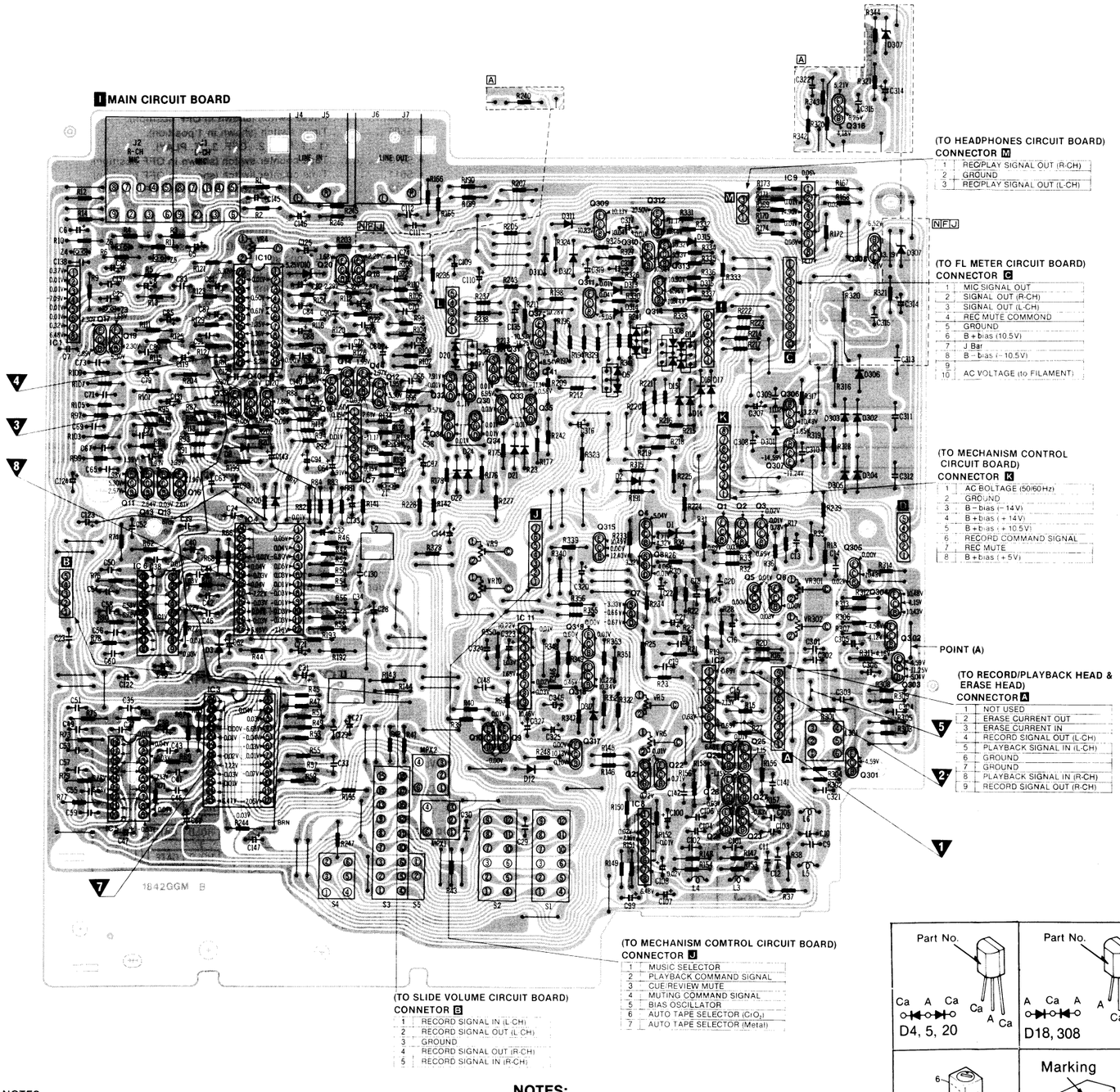
NOTES:
- N .....For Asia, Latin America, Middle East and Africa areas.
- A .....For Australia.
- F .....For Asian PX.
- J .....For European PX.

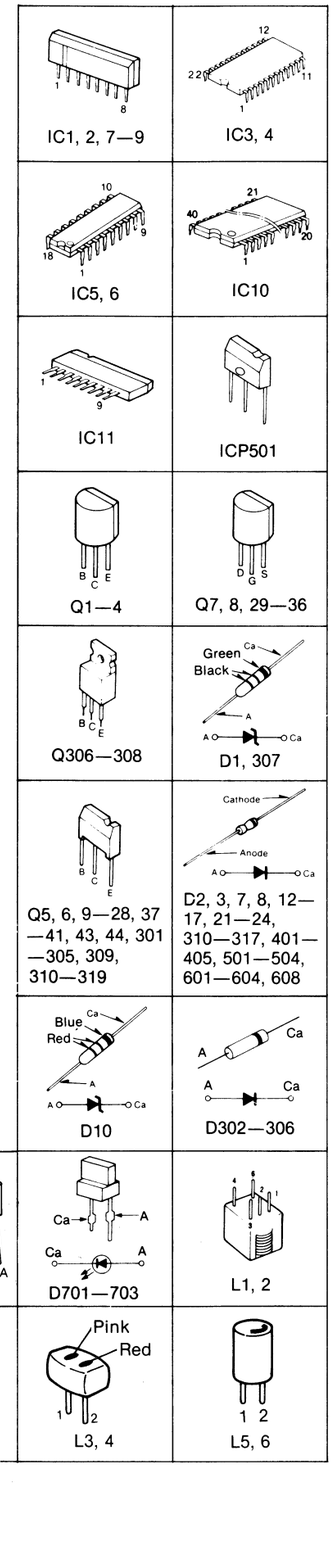
* A ...For Australia.

* NFJ ...For PX, Asia, Latin America, Middle East and Africa areas.

CIRCUIT BOARD

• MAIN CIRCUIT BOARD





NOTES:
- The circuit shown in [redacted] on the conductor side indicates printed circuit on the back side of the printed circuit board.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position.
  For measurement, use VTVM.

• This circuit board diagram may be modified at any time with the development of new technology.

NOTES:
- N.....For Asia, Latin America, Middle East and Africa areas.
- A.....For Australia.
- F.....For Asian PX.
- J.....For European PX.

ELECTRICAL PA

NOTES: RESISTORS
- ERD.....Carbon
- ERG .....Metal-oxide
- ERS.....Metal-oxide
- ERO .....Metal-film
- ERX.....Metal-film
- ERQ .....Fuse type metallic
- ERC.....Solid
- ERF.....Cement

CAPACI
- ECBA
- ECG□
- ECK□
- ECC□
- ECF□
- ECQM
- ECQE
- ECQF

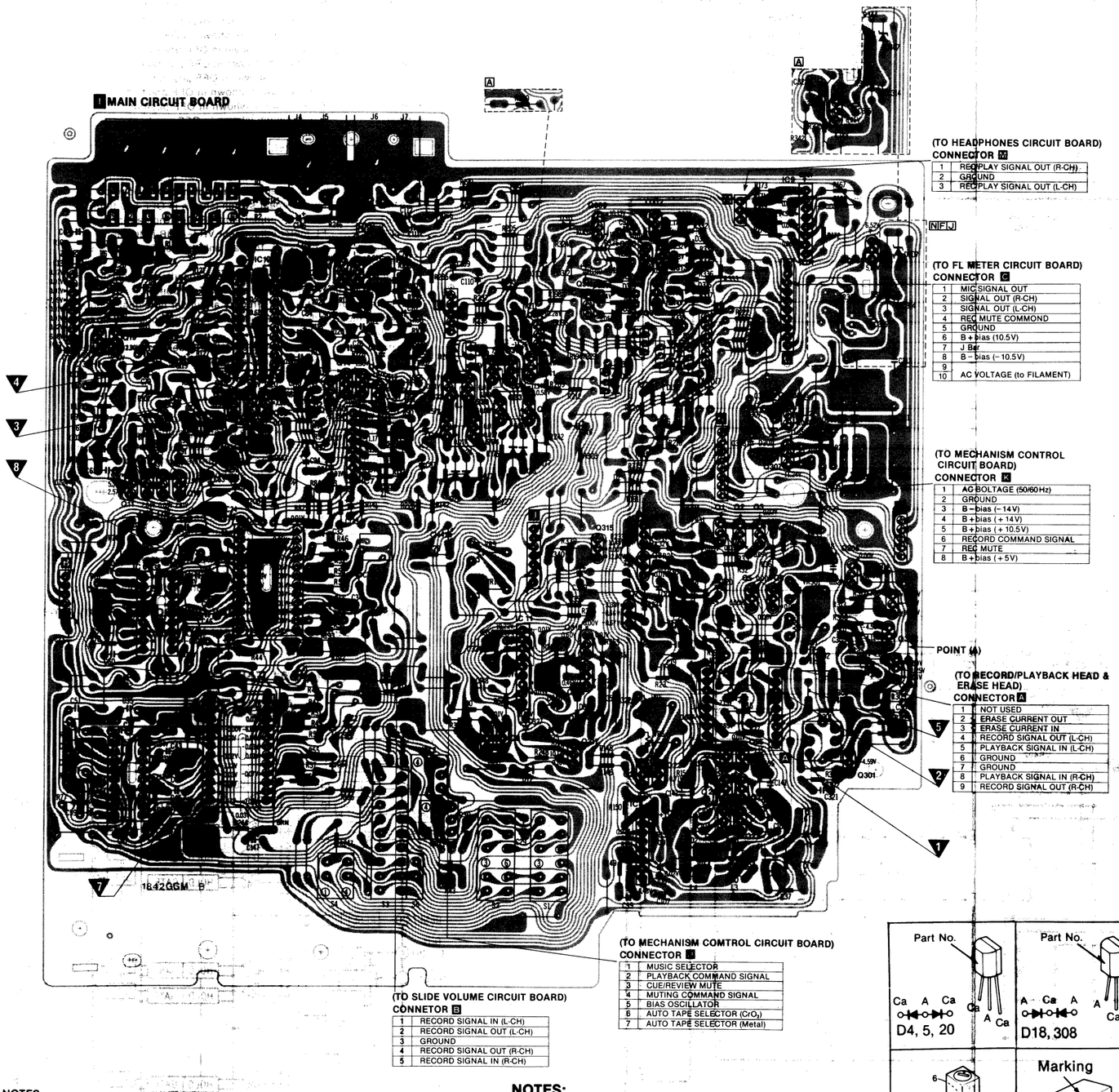
REPLACEMENT PARTS LIST

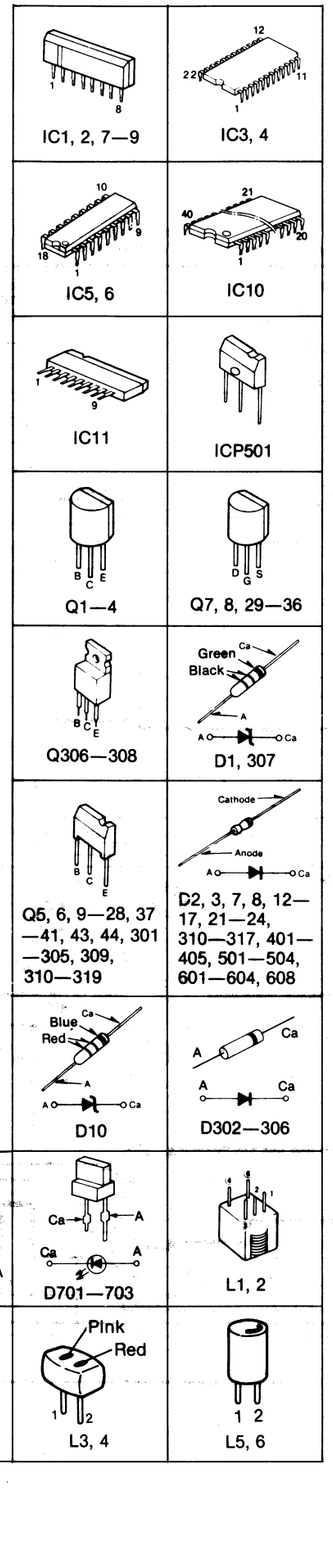
Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.
RESISTORS	
R 1, 2	ERD25FJ273
R 3, 4	ERD25FJ102
R 5, 6	ERD25TJ273
R 9, 10	ERD25FJ102
R 11, 12	ERD25TJ224
R 13, 14	ERD25FJ472
R 15, 16	ERD25FJ100
R 17, 18	ERD25TJ473
R 19, 20	ERD25FJ101
R 21, 22	ERD25TJ824
R 23, 24	ERD25TJ183
R 25, 26	ERD25TJ123
R 27, 28	ERD25FJ221
R 29, 30	ERD25TJ104
R 31, 32	ERD25FJ472
R 33	ERD25FJ561
R 34	ERD25TJ223
R 35, 36	ERD25FJ102
R 37, 38	ERD25TJ123
R 39, 40	ERD25FJ820
R 41, 42	ERD25FJ272
R 43, 44	ERD25FJ472
R 45, 46	ERD25FJ101
R 47, 48	ERD25FJ512
R 49, 50	ERD25FJ103
R 51, 52	ERD25FJ102
R 53, 54	ERD25TJ224
R 55, 56	ERD25TJ683
R 57, 58	ERD25FJ512
R 59, 60	ERD25FJ222
R 61, 62	ERD25TJ823
R 63	ERD25FJ103
R 65, 66	ERD25FJ472
R 67, 68	ERD25TJ123
R 69, 70	ERD25TJ473
R 71, 72	ERD25TJ753
R 73, 74	ERD25TJ334
R 75, 76, 77, 78	ERD25TJ394
R 79, 80	ERD25TJ334
R 81, 82	ERD25TJ153
R 83, 84	ERD25FJ102
R 85, 86, 87, 88	ERD25TJ104
R 89, 90	ERD25FJ332
R 91, 92	ERD25TJ223
R 93, 94	ERD25TJ683
R 95, 96	ERD25FJ822
R 97, 98	ERD25TJ333
R 99, 100	ERD25TJ154
R 101, 102	ERD25TJ244
R 103, 104	ERD25FJ472
R 105, 106	ERD25TJ333
R 107, 108	ERD25FJ682
R 109	ERD25FJ332
R 110, 111, 112	ERD25FJ332
R 113, 114	ERD25TJ683
R 115, 116	ERD25FJ472
R 119, 120	ERD25TJ163
R 121, 122	ERD25FJ102
R 123, 124	ERD25FJ103
R 125, 126	ERD25FJ151
R 127, 128	ERD25FJ472
R 129, 130	ERD25TJ163
R 131, 132	ERD25TJ104
R 133, 134	ERD25FJ102
R 137, 138	ERD25FJ331
R 141, 142	ERD25TJ182
R 143, 144	ERD25FJ682
R 145, 146	ERD25FJ821
R 147, 148	ERD25FJ102
R 149, 150	ERD25FJ272
R 151, 152	ERD25FJ103
R 153, 154	ERD25FJ390
R 155, 156	ERD25FJ272
R 157, 158	ERD25FJ332
R 165, 166	ERD25FJ103
R 167, 168, 169, 170	ERD25TJ473
R 171, 172	ERD25TJ184
R 173, 174	ERD25FJ121
R 175, 176, 177, 178	ERD25FJ225
R 189, 190	ERD25FJ102
R 191	ERD25FJ221
R 192	ERD25TJ104
R 193	ERD25FJ103
R 194	ERD25FJ102
R 195	ERD25FJ332
R 196, 197	ERD25TJ563
R 198	ERD25TJ104
R 199	ERD25TJ563
R 200	ERD25FJ222
R 201	ERD25TJ273
R 202	ERD25TJ563
R 203 [A]	ERD25FJ151
[For Australia.] [N]	ERD25FJ331
[For Asia, Latin America, Middle East and Africa areas.]	
R 204	ERD25FJ102
R 205, 207 [A]	ERG2ANJ560
[For Australia.] [NFJ]	ERD25FJ560
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 209	ERD25FJ103
R 211	ERD25FJ182
R 212	ERD25FJ225
R 213	ERD25TJ684
R 214	ERD25FJ332
R 215	ERD25TJ104
R 216	ERD25TJ154
R 217, 218, 219	ERD25FJ103
R 220	ERD25TJ563
R 221	ERD25TJ333
R 222	ERD25FJ471
R 223	ERD25FJ561
R 224	ERD25FJ681
R 225	ERD25FJ122
R 227, 228	ERD25FJ221
R 233, 234	ERD25FJ225
R 235	ERD25FJ151
R 237, 238, 239	ERD25FJ103
R 240 [A]	ERD25FJ181
[For Australia.]	
R 241	ERD25FJ561
R 242	ERD25TJ684
R 243	ERD25FJ103
R 244	ERD25TJ333
R 245, 246	ERD25TJ394
R 247	ERD25FJ472
R 248	ERD25FJ103
R 301	ERD25FJ1R0
R 302	ERD25FJ100
R 303, 304	ERD25FJ562
R 305, 306	ERD25FJ100
R 307	ERD25FJ222
R 308	ERD25FJ332
R 309	ERD25FJ392
R 311	ERD25FJ222
R 312	ERD25TJ562
R 313	ERD25TJ473
R 314, 315	ERD25TJ563
R 316 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 317, 318 ⚠	ERD25FJ681
R 319 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 320 ⚠	ERX2ANJ8R2
R 321 ⚠	ERD25FJ102
R 322	ERD25FJ103
R 323	ERD25FJ472
R 324	ERD25TJ104
R 325	ERD25TJ473
R 326	ERD25TJ223
R 327	ERD25FJ272
R 328	ERD25TJ104
R 329	ERD25FJ472
R 330	ERD25TJ104
R 331	ERD25TJ683
R 332, 333	ERD25TJ104
R 334	ERD25FJ682
R 335, 336	ERD25FJ103
R 337	ERD25TJ563
R 338	ERD25FJ682
R 339, 340	ERD25TJ563
R 341	ERD25TJ104
R 342 [A]	ERD25TJ153
[For Australia.] R 343 [A]	ERD25FJ103
[For Australia.] R 344 [A]	ERD25FJ470
[For Australia.] R 346	ERD25TJ104
R 347	ERD25TJ473
R 348	ERD25TJ274
R 349	ERD25FJ103
R 350	ERD25TJ104
R 351	ERD25FJ472
R 352, 353	ERD25FJ103
R 355, 356	ERD25TJ183
R 401, 402, 403, 404	ERD25TJ273
R 405, 406	ERD25TJ154
R 407, 408, 409, 410	ERD25TJ223
R 411, 412	ERD25FJ222
R 413, 414	ERD25TJ684
R 415	ERD25FJ222
R 416	ERD25TJ393
R 417	ERD25TJ563
R 418 [A]	ERG1ANJ221
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 419	ERD25FJ103
R 420	ERD25FJ472
R 421	ERD25FJ182
R 422	ERD25TJ684
R 423	ERD25FJ471
R 424	ERD25TJ563
R 425	ERD25FJ103
R 426, 427 [A]	ERD50FJ271
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 428 [A]	ERG2ANJ470
[For Australia.] [NFJ]	ERD25FJ470
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 429	ERD25FJ471
R 431	ERD25FJ470
R 432, 433, 434, 435	ERD25FJ471
R 436	ERD25FJ222
R 437, 438, 439	ERD25TJ563
R 501	ERD25TJ223
R 601	ERD25FJ681
R 602	ERD25FJ821
R 603	ERD25FJ102
R 607	ERD25FJ272
R 608, 609	ERD25TJ273
R 610	ERD25FJ222
R 611	ERD25TJ473
R 612	ERD25FJ562
R 613	ERD25FJ471
R 614, 615	ERD25TJ273
R 616	ERD25FJ103
R 617	ERD25FJ681
R 618	ERD25FJ332
R 619	ERD25FJ103
R 620	ERD25TJ223
R 622	ERD25FJ562
R 623	ERD25FJ102
R 624	ERD25FJ222
R 625	ERD25FJ472
VARIABLE RESISTOR	
VR 1, 2	QVBP1PUA54
VR 3	QVAV5KUG15
VR 4	EVNM4AA00B
VR 5, 6	EVNM4AA00B
VR 7, 8	QVBF1PUA14
VR 9, 10	EVNM4AA00B
VR 301, 302	EVNM4AA00B
VR 401	EVNM4AA00B
VR 402	EVNM4AA00B
CAPACITORS	
C 5, 6	ECEA50Z1
C 7, 8	ECFDD223KX
C 9, 10	ECKD2H121K
C 11, 12	ECKD1H561K
C 13, 14	ECKD1H471K
C 15, 16	ECEA1AS101
C 17, 18	ECQM1H392J
C 19, 20	ECCD1H470K
C 21, 22	ECEA50Z1
C 23, 24	ECQV05224JZ
C 25, 26	ECEA25Z4R7

CIRCUIT BOARD

• MAIN CIRCUIT BOARD





NOTES:
- The circuit shown in [redacted] on the conductor side indicates printed circuit on the back side of the printed circuit board.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position. For measurement, use VTVM.

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NOTES:
- N.....For Asia, Latin America, Middle East and Africa areas.
- A.....For Australia.
- F.....For Asian PX.
- J.....For European PX.

ELECTRICAL PA

NOTES: RESISTORS
- ERD.....Carbon
- ERG .....Metal-oxide
- ERS.....Metal-oxide
- ERO .....Metal-film
- ERX.....Metal-film
- ERQ .....Fuse type metallic
- ERC.....Solid
- ERF.....Cement

CAPACI
- ECBA
- ECQ□
- ECKD
- ECC□
- ECF□
- ECQM
- ECQE
- ECQF

REPLACEMENT PARTS LIST

Important safety notice
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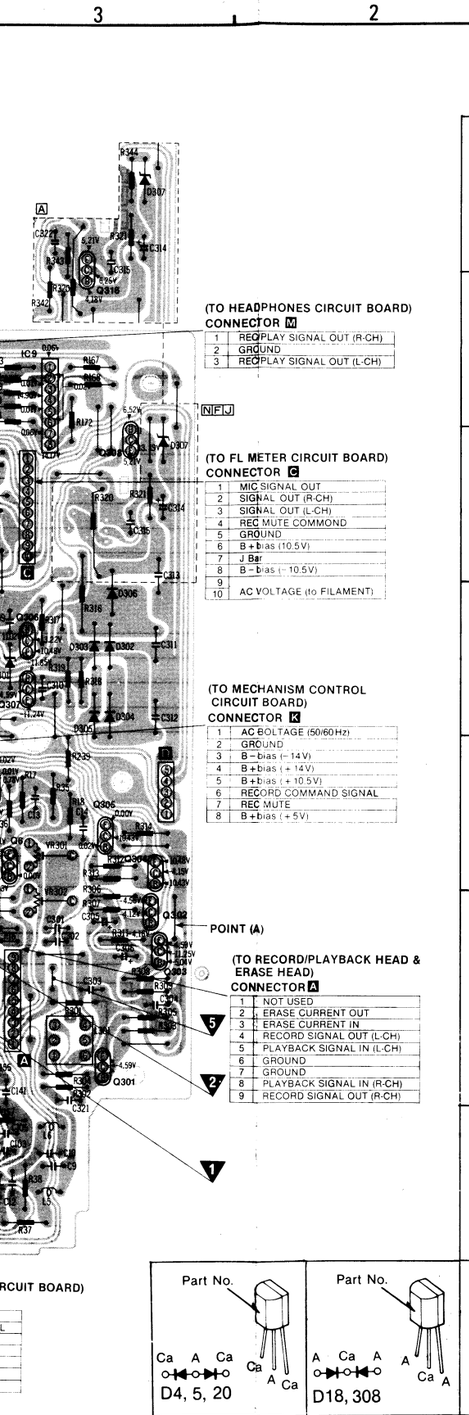
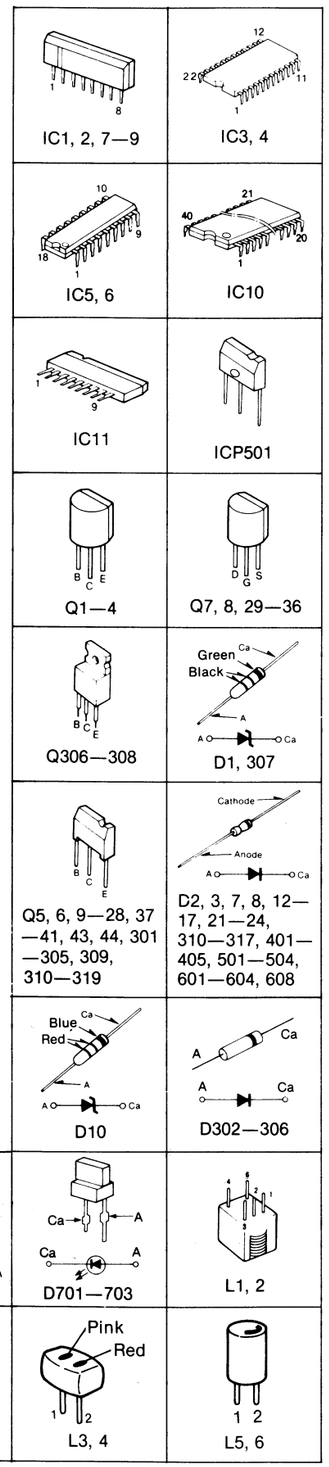
Ref. No.	Part No.
RESISTORS	
R 1, 2	ERD25TJ273
R 3, 4	ERD25FJ102
R 5, 6	ERD25TJ273
R 9, 10	ERD25FJ102
R 11, 12	ERD25TJ224
R 13, 14	ERD25FJ472
R 15, 16	ERD25FJ100
R 17, 18	ERD25TJ473
R 19, 20	ERD25FJ101
R 21, 22	ERD25TJ824
R 23, 24	ERD25TJ183
R 25, 26	ERD25TJ123
R 27, 28	ERD25FJ221
R 29, 30	ERD25TJ104
R 31, 32	ERD25FJ472
R 33	ERD25FJ561
R 34	ERD25TJ223
R 35, 36	ERD25FJ102
R 37, 38	ERD25TJ123
R 39, 40	ERD25FJ820
R 41, 42	ERD25FJ272
R 43, 44	ERD25FJ472
R 45, 46	ERD25FJ101
R 47, 48	ERD25FJ512
R 49, 50	ERD25FJ103
R 51, 52	ERD25FJ102
R 53, 54	ERD25TJ224
R 55, 56	ERD25TJ683
R 57, 58	ERD25FJ512
R 59, 60	ERD25FJ222
R 61, 62	ERD25TJ823
R 63	ERD25FJ103
R 65, 66	ERD25FJ472
R 67, 68	ERD25TJ123
R 69, 70	ERD25TJ473
R 71, 72	ERD25TJ753
R 73, 74	ERD25TJ334
R 75, 76, 77, 78	ERD25TJ394
R 79, 80	ERD25TJ334
R 81, 82	ERD25TJ153
R 83, 84	ERD25FJ102
R 85, 86, 87, 88	ERD25TJ104
R 89, 90	ERD25FJ332
R 91, 92	ERD25TJ223
R 93, 94	ERD25TJ683
R 95, 96	ERD25FJ822
R 97, 98	ERD25TJ333
R 99, 100	ERD25TJ154
R 101, 102	ERD25TJ244
R 103, 104	ERD25FJ472
R 105, 106	ERD25TJ333
R 107, 108	ERD25FJ682
R 109	ERD25FJ332
R 110, 111, 112	ERD25FJ332
R 113, 114	ERD25TJ683
R 115, 116	ERD25FJ472
R 119, 120	ERD25TJ163
R 121, 122	ERD25FJ102
R 123, 124	ERD25FJ103
R 125, 126	ERD25FJ151
R 127, 128	ERD25FJ472
R 129, 130	ERD25TJ163
R 131, 132	ERD25TJ104
R 133, 134	ERD25FJ102
R 137, 138	ERD25FJ331
R 141, 142	ERD25TJ182
R 143, 144	ERD25FJ682
R 145, 146	ERD25FJ821
R 147, 148	ERD25FJ102
R 149, 150	ERD25FJ272
R 151, 152	ERD25FJ103
R 153, 154	ERD25FJ390
R 155, 156	ERD25FJ272
R 157, 158	ERD25FJ332
R 165, 166	ERD25FJ103
R 167, 168, 169, 170	ERD25TJ473
R 171, 172	ERD25TJ184
R 173, 174	ERD25FJ121
R 175, 176, 177, 178	ERD25FJ225
R 189, 190	ERD25FJ102
R 191	ERD25FJ221
R 192	ERD25TJ104
R 193	ERD25FJ103
R 194	ERD25FJ102
R 195	ERD25FJ332
R 196, 197	ERD25TJ563
R 198	ERD25TJ104
R 199	ERD25TJ563
R 200	ERD25FJ222
R 201	ERD25TJ273
R 202	ERD25TJ563
R 203 [A]	ERD25FJ151
[For Australia.] [N]	ERD25FJ331
[For Asia, Latin America, Middle East and Africa areas.]	
R 204	ERD25FJ102
R 205, 207 [A]	ERG2ANJ560
[For Australia.] [NFJ]	ERD25FJ560
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 209	ERD25FJ103
R 211	ERD25FJ182
R 212	ERD25FJ225
R 213	ERD25TJ684
R 214	ERD25FJ332
R 215	ERD25TJ104
R 216	ERD25TJ154
R 217, 218, 219	ERD25FJ103
R 220	ERD25TJ563
R 221	ERD25TJ333
R 222	ERD25FJ471
R 223	ERD25FJ561
R 224	ERD25FJ681
R 225	ERD25FJ122
R 227, 228	ERD25FJ221
R 233, 234	ERD25FJ225
R 235	ERD25FJ151
R 237, 238, 239	ERD25FJ103
R 240 [A]	ERD25FJ181
[For Australia.]	
R 241	ERD25FJ561
R 242	ERD25TJ684
R 243	ERD25FJ103
R 244	ERD25TJ333
R 245, 246	ERD25TJ394
R 247	ERD25FJ472
R 248	ERD25FJ103
R 301	ERD25FJ1R0
R 302	ERD25FJ100
R 303, 304	ERD25FJ562
R 305, 306	ERD25FJ100
R 307	ERD25FJ222
R 308	ERD25FJ332
R 309	ERD25FJ392
R 311	ERD25FJ222
R 312	ERD25FJ562
R 313	ERD25TJ473
R 314, 315	ERD25TJ563
R 316 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 317, 318 ⚠	ERD25FJ681
R 319 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 320 ⚠	ERX2ANJ8R2
R 321 ⚠	ERD25FJ102
R 322	ERD25FJ103
R 323	ERD25FJ472
R 324	ERD25TJ104
R 325	ERD25TJ473
R 326	ERD25TJ223
R 327	ERD25FJ272
R 328	ERD25TJ104
R 329	ERD25FJ472
R 330	ERD25TJ104
R 331	ERD25TJ683
R 332, 333	ERD25TJ104
R 334	ERD25FJ682
R 335, 336	ERD25FJ103
R 337	ERD25TJ563
R 338	ERD25FJ682
R 339, 340	ERD25TJ563
R 341	ERD25TJ104
R 342 [A]	ERD25TJ153
[For Australia.] R 343 [A]	ERD25FJ103
[For Australia.] R 344 [A]	ERD25FJ470
[For Australia.] R 346	ERD25TJ104
R 347	ERD25TJ473
R 348	ERD25TJ274
R 349	ERD25FJ103
R 350	ERD25TJ104
R 351	ERD25FJ472
R 352, 353	ERD25FJ103
R 355, 356	ERD25TJ183
R 401, 402, 403, 404	ERD25TJ273
R 405, 406	ERD25TJ154
R 407, 408, 409, 410	ERD25TJ223
R 411, 412	ERD25FJ222
R 413, 414	ERD25TJ684
R 415	ERD25FJ222
R 416	ERD25TJ393
R 417	ERD25TJ563
R 418 [A]	ERG1ANJ221
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 419	ERD25FJ103
R 420	ERD25FJ472
R 421	ERD25FJ182
R 422	ERD25TJ684
R 423	ERD25FJ471
R 424	ERD25TJ563
R 425	ERD25FJ103
R 426, 427 [A]	ERD50FJ271
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 428 [A]	ERG2ANJ470
[For Australia.] [NFJ]	ERD25FJ470
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 429	ERD25FJ471
R 431	ERD25FJ470
R 432, 433, 434, 435	ERD25FJ471
R 436	ERD25FJ222
R 437, 438, 439	ERD25TJ563
R 501	ERD25TJ223
R 601	ERD25FJ681
R 602	ERD25FJ821
R 603	ERD25FJ102
R 607	ERD25FJ272
R 608, 609	ERD25TJ273
R 610	ERD25FJ222
R 611	ERD25TJ473
R 612	ERD25FJ562
R 613	ERD25FJ471
R 614, 615	ERD25TJ273
R 616	ERD25FJ103
R 617	ERD25FJ681
R 618	ERD25FJ332
R 619	ERD25FJ103
R 620	ERD25TJ223
R 622	ERD25TJ562
R 623	ERD25FJ102
R 624	ERD25FJ222
R 625	ERD25FJ472
VARIABLE RESISTOR	
VR 1, 2	QVBP1PUA54
VR 3	QVAV5KUG15
VR 4	EVNM4AA00E
VR 5, 6	EVNM4AA00E
VR 7, 8	QVBF1PUA14
VR 9, 10	EVNM4AA00E
VR 301, 302	EVNM4AA00E
VR 401	EVNM4AA00E
VR 402	EVNM4AA00E
CAPACITORS	
C 5, 6	ECEA50Z1
C 7, 8	ECFDD223KX
C 9, 10	ECKD2H121K
C 11, 12	ECKD1H561K
C 13, 14	ECKD1H471K
C 15, 16	ECEA1AS101
C 17, 18	ECQM1H392J
C 19, 20	ECCD1H470K
C 21, 22	ECEA50Z1
C 23, 24	ECQV05224JZ
C 25, 26	ECEA25Z4R7





ELECTRICAL PARTS LIST

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

NOTES: RESISTORS
ERD.....Carbon
ERG .....Metal-oxide
ERS.....Metal-oxide
ERO .....Metal-film
ERX.....Metal-film
ERQ .....Fuse type metallic
ERC.....Solid
ERF.....Cement

CAPACITORS
ECBA .....Ceramic
ECG□ .....Ceramic
ECK□ .....Ceramic
ECC□ .....Ceramic
ECF□ .....Ceramic
ECQM .....Polyester film
ECQE .....Polyester film
ECQF .....Polypropylene

ECE□ .....Electrolytic
ECE□N ...Non polar electrolytic
ECQS .....Polystyrene
ECS□ .....Tantalum
QCS .....Tantalum

RESISTORS

Ref. No.	Part No.
R 1, 2	ERD25TJ273
R 3, 4	ERD25FJ102
R 5, 6	ERD25TJ273
R 9, 10	ERD25FJ102
R 11, 12	ERD25FJ224
R 13, 14	ERD25FJ472
R 15, 16	ERD25FJ100
R 17, 18	ERD25TJ473
R 19, 20	ERD25FJ101
R 21, 22	ERD25TJ824
R 23, 24	ERD25TJ183
R 25, 26	ERD25TJ123
R 27, 28	ERD25FJ221
R 29, 30	ERD25TJ104
R 31, 32	ERD25FJ472
R 33	ERD25FJ561
R 34	ERD25TJ223
R 35, 36	ERD25FJ102
R 37, 38	ERD25TJ123
R 39, 40	ERD25FJ820
R 41, 42	ERD25FJ272
R 43, 44	ERD25FJ472
R 45, 46	ERD25FJ101
R 47, 48	ERD25FJ512
R 49, 50	ERD25FJ103
R 51, 52	ERD25FJ102
R 53, 54	ERD25TJ224
R 55, 56	ERD25TJ683
R 57, 58	ERD25FJ512
R 59, 60	ERD25FJ222
R 61, 62	ERD25TJ823
R 63	ERD25FJ103
R 65, 66	ERD25FJ472
R 67, 68	ERD25TJ123
R 69, 70	ERD25TJ473
R 71, 72	ERD25TJ753
R 73, 74	ERD25TJ334
R 75, 76, 77, 78	ERD25TJ394
R 79, 80	ERD25TJ334
R 81, 82	ERD25TJ153
R 83, 84	ERD25FJ102
R 85, 86, 87, 88	ERD25TJ104
R 89, 90	ERD25FJ332
R 91, 92	ERD25TJ223
R 93, 94	ERD25TJ683
R 95, 96	ERD25FJ822
R 97, 98	ERD25TJ333
R 99, 100	ERD25TJ154
R 101, 102	ERD25TJ244
R 103, 104	ERD25FJ472
R 105, 106	ERD25TJ333
R 107, 108	ERD25FJ682
R 109	ERD25FJ332
R 110, 111, 112	ERD25FJ332
R 113, 114	ERD25TJ683
R 115, 116	ERD25FJ472
R 119, 120	ERD25TJ163
R 121, 122	ERD25FJ102
R 123, 124	ERD25FJ103
R 125, 126	ERD25FJ151
R 127, 128	ERD25FJ472
R 129, 130	ERD25TJ163
R 131, 132	ERD25TJ104
R 133, 134	ERD25FJ102
R 137, 138	ERD25FJ331
R 141, 142	ERD25TJ182
R 143, 144	ERD25FJ682
R 145, 146	ERD25FJ821
R 147, 148	ERD25FJ102
R 149, 150	ERD25FJ272
R 151, 152	ERD25FJ103
R 153, 154	ERD25FJ390
R 155, 156	ERD25FJ272
R 157, 158	ERD25FJ332
R 165, 166	ERD25FJ103
R 167, 168, 169, 170	ERD25TJ473
R 171, 172	ERD25TJ184
R 173, 174	ERD25FJ121
R 175, 176, 177, 178	ERD25FJ225
R 189, 190	ERD25FJ102
R 191	ERD25FJ221
R 192	ERD25TJ104
R 193	ERD25TJ103
R 194	ERD25FJ102
R 195	ERD25FJ332
R 196, 197	ERD25TJ563
R 198	ERD25TJ104
R 199	ERD25TJ563
R 200	ERD25FJ222
R 201	ERD25TJ273
R 202	ERD25TJ563
R 203 [A]	ERD25FJ151
[For Australia.] [N]	ERD25FJ331
[For Asia, Latin America, Middle East and Africa areas.]	
R 204	ERD25FJ102
R 205, 207 [A]	ERG2ANJ560
[For Australia.] [NFJ]	ERD25FJ560
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 209	ERD25FJ103
R 211	ERD25FJ182
R 212	ERD25FJ225
R 213	ERD25TJ684
R 214	ERD25FJ332
R 215	ERD25TJ104
R 216	ERD25TJ154
R 217, 218, 219	ERD25FJ103
R 220	ERD25TJ563
R 221	ERD25TJ333
R 222	ERD25FJ471
R 223	ERD25FJ561
R 224	ERD25FJ681
R 225	ERD25FJ122
R 227, 228	ERD25FJ221
R 233, 234	ERD25FJ225
R 235	ERD25FJ151
R 237, 238, 239	ERD25FJ103
R 240 [A]	ERD25FJ181
[For Australia.]	
R 241	ERD25FJ561
R 242	ERD25TJ684
R 243	ERD25FJ103
R 244	ERD25TJ333
R 245, 246	ERD25TJ394
R 247	ERD25FJ472
R 248	ERD25FJ103
R 301	ERD25FJ1R0
R 302	ERD25FJ100
R 303, 304	ERD25FJ562
R 305, 306	ERD25FJ100
R 307	ERD25FJ222
R 308	ERD25FJ332
R 309	ERD25FJ392
R 311	ERD25FJ222
R 312	ERD25FJ562
R 313	ERD25TJ473
R 314, 315	ERD25TJ563
R 316 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 317, 318 ⚠	ERD25FJ681
R 319 [A] ⚠	ERQ12HJ3R9
[For Australia.] [NFJ] ⚠	ERD25FJ3R9
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 320 ⚠	ERX2ANJ8R2
R 321 ⚠	ERD25FJ102
R 322	ERD25FJ103
R 323	ERD25FJ472
R 324	ERD25TJ104
R 325	ERD25TJ473
R 326	ERD25TJ223
R 327	ERD25FJ272
R 328	ERD25TJ104
R 329	ERD25FJ472
R 330	ERD25TJ104
R 331	ERD25TJ683
R 332, 333	ERD25TJ104
R 334	ERD25FJ682
R 335, 336	ERD25FJ103
R 337	ERD25TJ563
R 338	ERD25FJ682
R 339, 340	ERD25TJ563
R 341	ERD25TJ104
R 342 [A]	ERD25TJ153
[For Australia.]	
R 343 [A]	ERD25FJ103
[For Australia.]	
R 344 [A]	ERD25FJ470
[For Australia.]	
R 346	ERD25TJ104
R 347	ERD25TJ473
R 348	ERD25TJ274
R 349	ERD25FJ103
R 350	ERD25TJ104
R 351	ERD25FJ472
R 352, 353	ERD25FJ103
R 355, 356	ERD25TJ183
R 401, 402, 403, 404	ERD25TJ273
R 405, 406	ERD25TJ154
R 407, 408, 409, 410	ERD25TJ223
R 411, 412	ERD25FJ222
R 413, 414	ERD25TJ684
R 415	ERD25FJ222
R 416	ERD25TJ393
R 417	ERD25TJ563
R 418 [A]	ERG1ANJ221
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 419	ERD25FJ103
R 420	ERD25FJ472
R 421	ERD25FJ182
R 422	ERD25TJ684
R 423	ERD25FJ471
R 424	ERD25TJ563
R 425	ERD25FJ103
R 426, 427 [A]	ERD50FJ271
[For Australia.] [NFJ]	ERD25FJ181
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 428 [A]	ERG2ANJ470
[For Australia.] [NFJ]	ERD25FJ470
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
R 429	ERD25FJ471
R 431	ERD25FJ470
R 432, 433, 434, 435	ERD25FJ471
R 436	ERD25FJ222
R 437, 438, 439	ERD25TJ563
R 501	ERD25TJ223
R 601	ERD25FJ681
R 602	ERD25FJ821
R 603	ERD25FJ102
R 607	ERD25FJ272
R 608, 609	ERD25TJ273
R 610	ERD25FJ222
R 611	ERD25TJ473
R 612	ERD25FJ562
R 613	ERD25FJ471
R 614, 615	ERD25TJ273
R 616	ERD25FJ103
R 617	ERD25FJ681
R 618	ERD25FJ332
R 619	ERD25FJ103
R 620	ERD25TJ223
R 622	ERD25FJ562
R 623	ERD25FJ102
R 624	ERD25FJ222
R 625	ERD25FJ472

VARIABLE RESISTORS

VR 1, 2	QVBP1PUA54
VR 3	QVAV5KUG15
VR 4	EVNM4AA00B23
VR 5, 6	EVNM4AA00B24
VR 7, 8	QVBF1PUA14
VR 9, 10	EVNM4AA00B24
VR 301, 302	EVNM4AA00B55
VR 401	EVNM4AA00B13
VR 402	EVNM4AA00B24

CAPACITORS

C 5, 6	ECEA50Z1
C 7, 8	ECFDD223KXY
C 9, 10	ECKD2H121KB
C 11, 12	ECKD1H561KB
C 13, 14	ECKD1H471KB
C 15, 16	ECEA1AS101
C 17, 18	ECQM1H392JZ
C 19, 20	ECCD1H470KC
C 21, 22	ECEA50Z1
C 23, 24	ECQV05224JZ
C 25, 26	ECEA25Z4R7
C 27, 28	ECEA50Z1
C 29, 30	ECFDD392KVY
C 31, 32	ECEA25Z4R7
C 33, 34	ECQM1H103JZ
C 35, 36	ECQM1H683JZ
C 37, 38	ECQV05154JZ
C 39, 40	ECEA1HS100
C 41, 42	ECQM1H333JZ
C 43, 44, 45, 46	ECQM1H472JZ
C 47, 48	ECEA1HS100
C 49, 50	ECQM1H473JZ
C 51, 52	ECQM1H333JZ
C 53, 54, 55, 56	ECQM1H104JZ
C 57, 58	ECQM1H333JZ
C 59, 60	ECQV05224JZ
C 61, 62	ECEA25Z4R7
C 63, 64	ECEA50ZR22
C 65, 66, 67, 68	ECQV05104JZ
C 69, 70, 71, 72	ECQM1H332JZ
C 73, 74	ECCD1H331J
C 75, 76	ECQM1H223JZ
C 77, 78	ECCD1H391J
C 79, 80	ECEA50MR68R
C 81, 82	ECEA16Z10
C 83, 84	ECQM1H333JZ
C 85, 86	ECEA50MR33R
C 87, 88	ECEA1AS470
C 89, 90	ECQM1H472JZ
C 91, 92	ECQM1H223JZ
C 93, 94, 97, 98	ECEA1HS100
C 99, 100	ECEA50ZR1
C 101, 102	ECQV05273JZ
C 103, 104	ECFDD472KVY
C 107, 108	ECEA50Z1
C 109, 110	ECEA1HS100
C 111, 112	ECFDD392KVY
C 119	ECEA1HS100
C 120, 121	ECEA50Z1
C 122	ECEA1HS100
C 123	ECEA1ASS471
C 124	ECEA1AS101
C 127, 128	ECFDD103KXY
C 129 130	ECKD1H681KB
C 131, 132	ECEA1HS100
C 133	ECEA1AS470
C 135	ECEA1HS100
C 137, 138	ECEA50Z1
C 139, 140	ECCD1H331J
C 143	ECEA1AS220
C 144	ECEA1AS221
C 145	ECFDD152KVY
C 146	ECEA50Z1
C 147	ECEA1AS101
C 148	ECEA1CN470
C 301, 302	ECCD1H470KC
C 303	ECQP1153JZ
C 304	ECFDD822KVY
C 305	ECEA25Z4R7
C 306	ECEA1ES220
C 307	ECEA1CS330
C 308	ECEA1CSS331
C 309, 310	ECKD1H223ZF
C 311 ⚠	ECEA1ES332
C 312, 313 ⚠	ECEA1CS222
C 314	ECEA1ES220
C 315	ECKD1H223ZF
C 316	ECEA1ES220
C 317	ECEA1AS221
C 318	ECEA50Z1
C 319	ECEA1CS330
C 320	ECEA50Z1
C 321	ECFDD153KXY
C 322 [A]	ECEA1CS330
[For Australia.]	
C 323	ECEA1HS100
C 324	ECFDD472KVY
C 325	ECEA50ZR22
C 326	ECEA50Z2R2
C 327	ECEA25Z4R7
C 401, 402	ECEA50ZR1
C 403, 404	ECFDD152KVY
C 405, 406	ECCD1H560K
C 407, 408	ECEA50Z1
C 409	ECFDD473KXY
C 410	ECEA1HS100
C 501	ECEA1CN100
C 601, 602	ECFDD392KVY
C 603	ECQV05104JZ
C 604	ECEA50ZR1
C 605	ECEA1AS470
C 606	ECEA50Z2R2
C 607	ECFDD473KXY
C 801 ⚠	ECQU2A103MF

COMBINATION PARTS

Z 1, 2	EXRP181K153
Z 3, 4	EXRP220K124
Z 5, 6	EXRP152K473
Z 601	EXBEQ5273K
Z 602	EXBD88254K
Z 603	EXBD86181K
Z 604	EXBEQ4272K

TRANSISTORS

Q 1, 2, 3	2SD1011
Q 4	2SA921
Q 5, 6	2SD636
Q 7, 8	2SK246
Q 9, 10, 11, 12, 13, 14, 15, 16	2SD636
Q 17, 18	2SD661
Q 19, 20, 21, 22	2SD636
Q 23, 24	2SB641
Q 25, 26, 27, 28	2SD636
Q 29, 30, 31, 32, 33, 34, 35, 36	2SJ105GR
Q 37	2SB641
Q 38	2SD636
Q 39, 40	2SB641
Q 41, 43, 44	2SD636
Q 301	2SD1225
Q 302	2SD638
Q 303, 304	2SB641
Q 305	2SD636
Q 306	2SD1265
Q 307	2SB941
Q 308	2SD1275
Q 309	2SB641
Q 310, 311	2SD636
Q 312, 313, 314, 315	2SB641
Q 316 [A]	2SD636
[For Australia.]	
Q 317	2SD636
Q 318	2SB641
Q 319, 401	2SD636
Q 402	2SB641
Q 403	2SD636
Q 404, 405	2SB641
Q 406	2SD636
Q 601, 602, 603, 604, 605	2SB641
Q 606	2SD636

DIODES & RECTIFIERS

D 1	MA1056
D 2, 3	MA161
D 4, 5	MC911TA
D 7, 8	MA161
D 10	MA1051
D 12, 14, 15, 16, 17	MA161
D 18, 19	MC921TA
D 20	MC911TA
D 21, 22, 23, 24	MA161
D 301	MA1220M
D 302, 303, 304, 305, 306 ⚠	SM112
D 307 [A]	RVDRD6R2EB
[For Australia.] [NFJ]	RVDRD6R8EB
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
D 308	MC921TA
D 310, 311, 312, 313, 314, 315, 316, 317, 401, 403	MA161
D 403	MC921TA
D 405, 406	MA161
D 407 [A]	MA1033LLF
[For Australia.] [NFJ]	MA1030MTA
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
D 408 [A]	SVDEQA0113RA
[For Australia.] [NFJ]	MA1030MTA
[For PX. For Asia, Latin America, Middle East and Africa areas.]	
D 501, 502, 503, 504, 601, 605, 606, 607, 608, 609, 610, 611, 612, 613	MA161
D 701, 702, 703	refer to G47

INTEGRATED CIRCUITS

IC 1	M5218L
IC 2	M5220L
IC 3, 4	NE654N
IC 5, 6	NE652N
IC 7, 8, 9	M5218L
IC 10	AN6291
IC 11	BA336
IC 401	AN6870N
IC 403, 404	AN6280
IC 405	AN6552
IC 501	DN6838
IC 601	MN1405RMB
IC 603	M74LS04P
IC 604	AN6270

I.C PROTECTOR

ICP 501	QRUF10WH

MULTIPLEX FILTERS

MPX 1, 2	QLM9Z9K	MPX Filter

RESONATOR

X 601	EFOA600K01C	Ceramic Filter

COILS

L 1, 2	ELM7Q306A	Skewing Network
L 3, 4	QLQX2721D	Peaking Coil
L 5, 6	QLQX0343KWA	Bias Trap Coil
L 301	QLB0198	Bias Oscillation Coil
L 501, 502	QLQZ1014D	Choke Coil
L 601	QLQX1011Y	Choke Coil

TRANSFORMERS

T 1 [A] ⚠	QLPA70ELX	AC Power Transformer
[For Australia.] [NFJ] ⚠	QLPN83ELX	AC Power Transformer
[For PX. For Asia, Latin America, Middle East and Africa areas.]		

FUSE

F 1 [NFJ] ⚠	XBA2E03NS5	Fuse (0.3A)
[For PX. For Asia, Latin America, Middle East and Africa areas.]		

SWITCHES

S 1, 2, 3, 4, 5	QSWX413A	Push Switch (NR Selector/NR MUTE)
S 501	QSB0289	Leaf Switch (REC Inhibit)
S 502	QSB0287	Leaf Switch (Mode)
S 503	QSB0288	Leaf Switch (Stop)
S 504	QSB0287	Leaf Switch (Play)
S 505	QSB0288	Leaf Switch (Eject)
S 506	QSB0290	Leaf Switch (for CrO_2 Tape)
S 507	QSB0289	Leaf Switch (for Metal Tape)
S 601, 602, 603	SSG13	Key Board Switch (Rec Mute/Stop/Counter Reset)
S 604	QSW1126	Key Board Switch with D603 (Play)
S 605, 606	SSG13	Key Board Switch (F.F/REW)
S 607	QSW1124	Key Board Switch with D604 (Record)
S 608	QSW1125	Key Board Switch with D602 (Pause)
S 609	QSS1306	Slide Switch (Timer)
S 610, 611, 612, 613 ⚠	QSW1130	Key Board Switch with (Tape Counter/Time Counter/M.S/Repeat)
S 801 ⚠	QSW1127	Push Switch (Power ON/OFF)
S 802 ⚠	QSR1407	Rotary Switch (Voltage Selector)

JACKS

J 1, 2	QJA0453	Jack (Microphone)
J 3	QJA0267	Jack (Headphone)
J 4, 5, 6, 7	QEJ5030C	Jack Board (LINE IN/OUT)
J 8	QJS1955H	Remote Control Socket

CONNECTORS

CN 1	QJT1054	Contact
CN 2	QJS1921TN	3 Pin Socket
CN 3	QJP1921TN	3 Pin Post
CN 4	QJS1922TN	6 Pin Socket
CN 5	QJP1922TN	6 Pin Post
CN 6	QJS1923TN	9 Pin Socket
CN 7	QJP1923TN	9 Pin Post
CN 8	QJS1987S	Jumper Socket (4 Pin)
CN 9	QJS1961S	Jumper Socket (5 Pin)
CN 10	QJS1962S	Jumper Socket (7 Pin)
CN 11	QJS1983	Jumper Socket (8 Pin)
CN 12	QJS1988S	Jumper Socket (9 Pin)
CN 13	QJS1989S	Jumper Socket (10 Pin)
CN 14	QJS1996T	Jumper Socket (14 Pin)
CN 15	QJT1090	Check Pin

SCHEMATIC DIAGRAM

• FL METER/MECHANISM CONTROL/KEY BOARD SECTION

NOTES:
N.....For Asia
Middle
areas.
A.....For Aus
F.....For Asia
J.....For Eur

VII MECHANISM CIRCUIT SECTION

IC501 [DN6838] MECHANISM
REEL MOTOR (QXU0321)
CAPSTAN MOTOR (QXU0322)
S501 S502 S504 S503 S505
ATS ATS S507 S506
R501 47K
C501 16V10
L501 L502
Brake Plunger SL602
Trigger Plunger SL601
REC MODE STOP PLAY HALF
D503 D501 D504 D502
PL1
E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 F1 F2 F3 F4 F5 F6 F7 F8

IX TIMER CIRCUIT SECTION

TIMER REC PLAY S609

VII MECHANISM CONTROL CIRCUIT SECTION

Q601—605 2SB641(Q,R,S) [2SB641]
MECH. CONTROL
D610
IC601 [MN1405RMB]
N1 N2 N3
D609
REPEAT S613 D605
TIME S611 D606
TAPE S610 D607
M.S S612 D608
COUNT RESET S601 D601
PAUSE S608
REC S607
STOP S603
PLAY S604
F.F S605
REW. S606
REC MUTE S602
PAUSE LED D602
PLAY LED D603
REC LED D604
R601 680
R602 820
R603
Q601 Q602 Q603 Q604 Q605
Z601 27K×5
Z602 2.2K×4 47K×4
Z603 5.6K×3 470×3
Z605 2.7K×4
R607 2.7K
R608 27K
R609 27K
R615 27K
D611
R610 2.2K
R611 47K
R612 5.6K
R613 470
R614 27K
L601 100
R616 10K
X601
C602 3900P
C601 3900P
R618 3.3K
R617 680
R622 5.6K
R623 1K
R624 2.2K
D612
C603 0.1
C605 6V47
C604 50V0.1
C607 0.047
D613
R620 22K
R619 10K
C606 50V2.2
R625 4.7K
IC603 [M74LS04P]
IC604 [AN6270]
REEL MOTOR CONTROL
0.09V (0.12V)
0.82V (0.84V)
(to Shield Plate)

VI FL METER CIRCUIT SECTION

D408 MA1130(MTA,LTA) [SVDEQA0113RA]
A D407 [MA1030LLF]
NFJ D407 [MA1030MTA]
COUNTER DRIVE
Q401 2SD636Q
Q402, 404, 405 2SB641(Q,R,S) [2SB641]
IC403, 404 [AN6280]
IC404
R434 470
R435 470
IC403
D407
R432 470
R433 470
R428
(* A :47(2W) (* NFJ :47(1/4W)
(* A : 270 (1/2W) (* NFJ : 180 (1/4W)
Q406 Q405 Q402 Q401
Q403, 406 2SD636(Q,R,S) [2SD636]
D401, 402, 405, 406 QVD1S2473T [MA161]
D408
R439 56K
R437 56K
R438 56K
R423 470
R422 680K
R427 180
R426 180
R421 1.8K
R418 180
R420 4.7K
C410 16V10
VR402 20K (B)
R424 56K
D403
R416 39K
Q403
D403, MC921TA
D405
R417 56K
IC401
IC401 [AN6870N]
R436 2.2K
R415 4.7K
C406 56P
C404 0.0015
R404 27K
R406 150K
C402 50V0.1
R402 27K
D402
R408 22K
R410 22K
C405 56P
IC405
C403 0.0015
R403 27K
R405 150K
D401
R411 2.2
R401 27K
R407 22K
R409 22K
R412 2.2K
VR401 1KB
D406
C407 50V1
R413 680K
R414 680K
C408 50V1
C409 0.047
R425 10K
Q404
R429 470
R431 47
D408
C401 50V0.1
LEVEL METER DRIVE

VIII KEY BOARD CIRCUIT SECTION

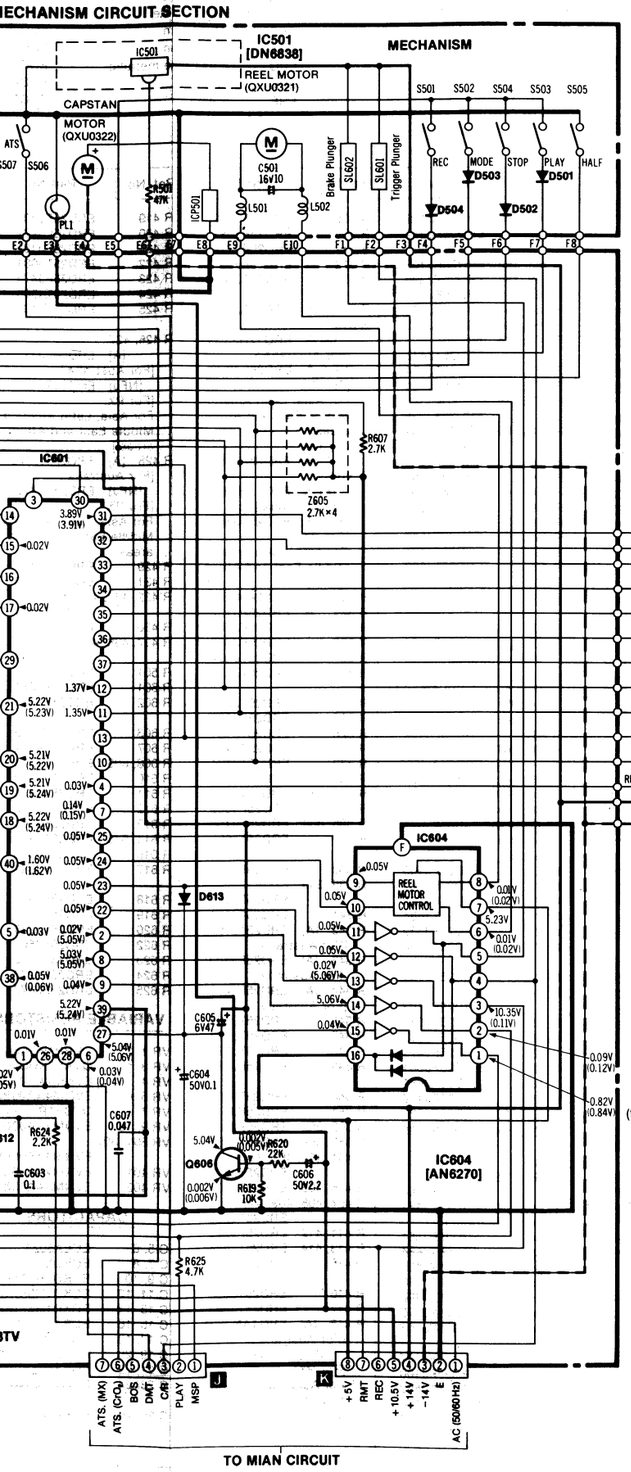
REMOTE CONTROL

X REMOTE CONTROL CIRCUIT SECTION

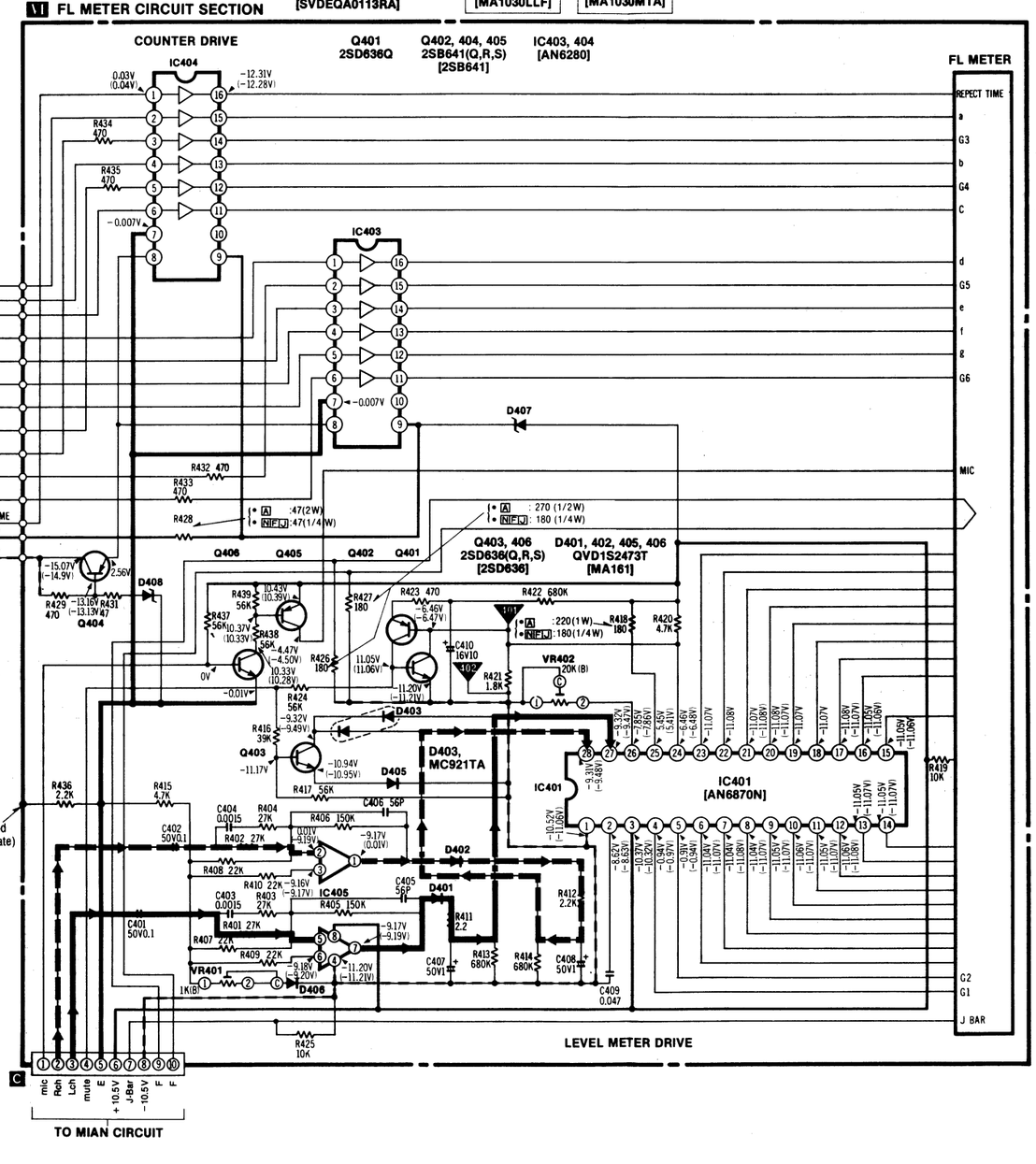
D601, 605—611, 613 QVD1S2473T [MA161]
D612 QVD1S2473TV [MA161]
J: ATS (MX) ATS (C/O) BOS DMT CR PLAY MSP
K: +5V RMT REC +10.5V +14V −14V E AC (50/60Hz)
TO MIAN CIRCUIT
C: mic Rch Lch mute E +10.5V J-Bar −10.5V F F
TO MIAN CIRCUIT

ARD SECTION

MECHANISM CIRCUIT SECTION



FL METER CIRCUIT SECTION



NOTES:

- N.....For Asia, Latin America, Middle East and Africa areas.
- A.....For Australia.
- F.....For Asian PX.
- J.....For European PX.

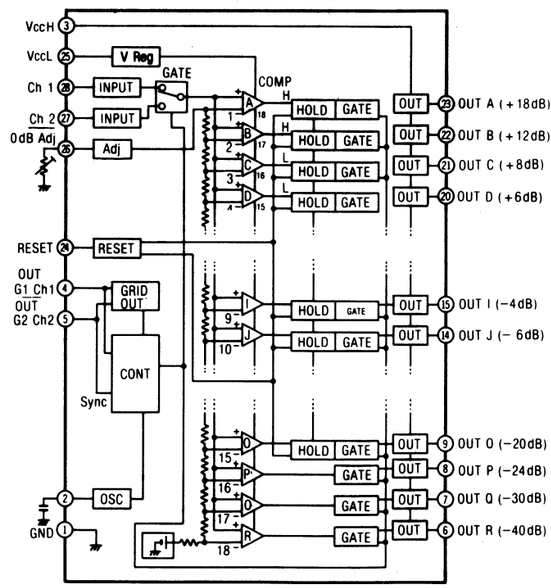
NOTES:

- S501.....REC inhibit switch (shown in OFF position).
- S502.....Mode switch (shown in OFF position).
- S503.....Stop switch (shown in OFF position).
- S504.....Play switch (shown in OFF position).
- S505.....Half switch (shown in OFF position).
- S506.....Auto tape select switch (for Normal tape).
- S507.....Auto tape select switch (for Metal/CrO_2 tape).
- S601.....Counter reset switch (shown in OFF position).
- S602.....REC Mute switch (shown in OFF position).
- S603.....Stop switch (shown in OFF position).
- S604.....Play switch (shown in OFF position).
- S605.....FF switch (shown in OFF position).
- S606.....Rewind switch (shown in OFF position).
- S607.....Record switch (shown in OFF position).
- S608.....Pause switch (shown in OFF position).
- S609.....Timer switch (shown in 1 position). (1...T. REC, 2...OFF, 3...T. PLAY).
- S610.....Tape counter switch (shown in OFF position).
- S611.....Time counter switch (shown in OFF position).
- S612.....Music select switch (shown in OFF position).
- S613.....Music repeat switch (shown in OFF position).
- VR401 .....FL meter adjustment VR (0dB indication).
- VR402 .....FL meter adjustment VR (−40dB indication).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1K = 1,000(Ω), 1M = 1,000k(Ω).
- Capacity are in micro-farads (μF) unless specified otherwise.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  - No mark .....Voltage values at OUT (NR select switch) mode.
  - ( ) .....Voltage values at record mode.
  - For measurement use VTVM.
- (▬) indicates B+ (bias).
- (▬) indicates B− (bias).
- (▬) indicates the flow of the playback signal. (NR out).
- (▬) indicates the flow of the recording signal. (NR out).
- Described in the schematic diagram are two types of numbers; the supply parts numbers and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.
  - e.g. Q1
    - 2SC1844(E, F)——Production parts number
    - [2SC1844E]——Supply parts number
    - D212
    - 1S2473T77——Production parts number
    - [MA161]——Supply parts number
- The supply parts number is described alone in the replacement parts list.

• This schematic diagram may be modified at any time with the development of new technology.

EQUIVALENT CIRCUIT

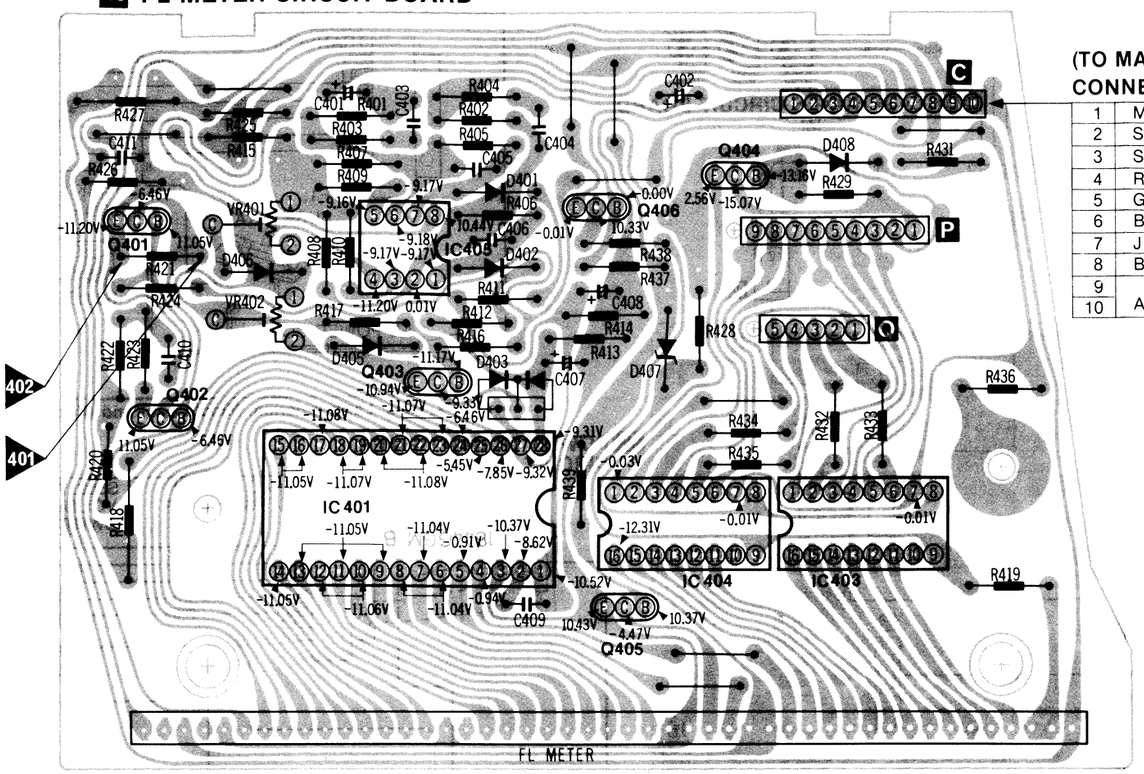
AN6870N



CIRCUIT BOARD

• FL METER/MECHANISM CONTROL/KEY BOARD SECTION

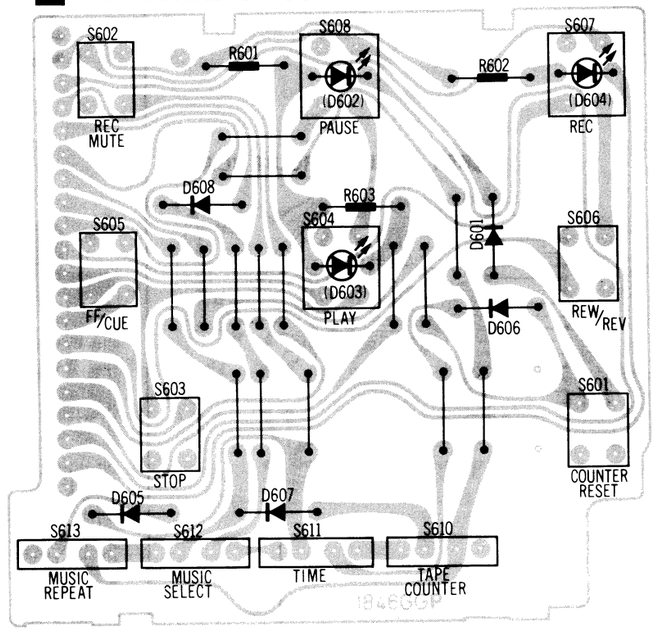
VI FL METER CIRCUIT BOARD



(TO MAIN CIRCUIT BOARD)
CONNECTOR C

1	MIC SIGNAL IN
2	SIGNAL IN (R-CH)
3	SIGNAL IN (L-CH)
4	REC MUTE COMMOND
5	GROUND
6	B + bias (10.5V)
7	J Bar
8	B – bias (– 10.5V)
9	
10	AC VOLTAGE (to FILAMENT)

VIII KEY BOARD CIRCUIT BOARD



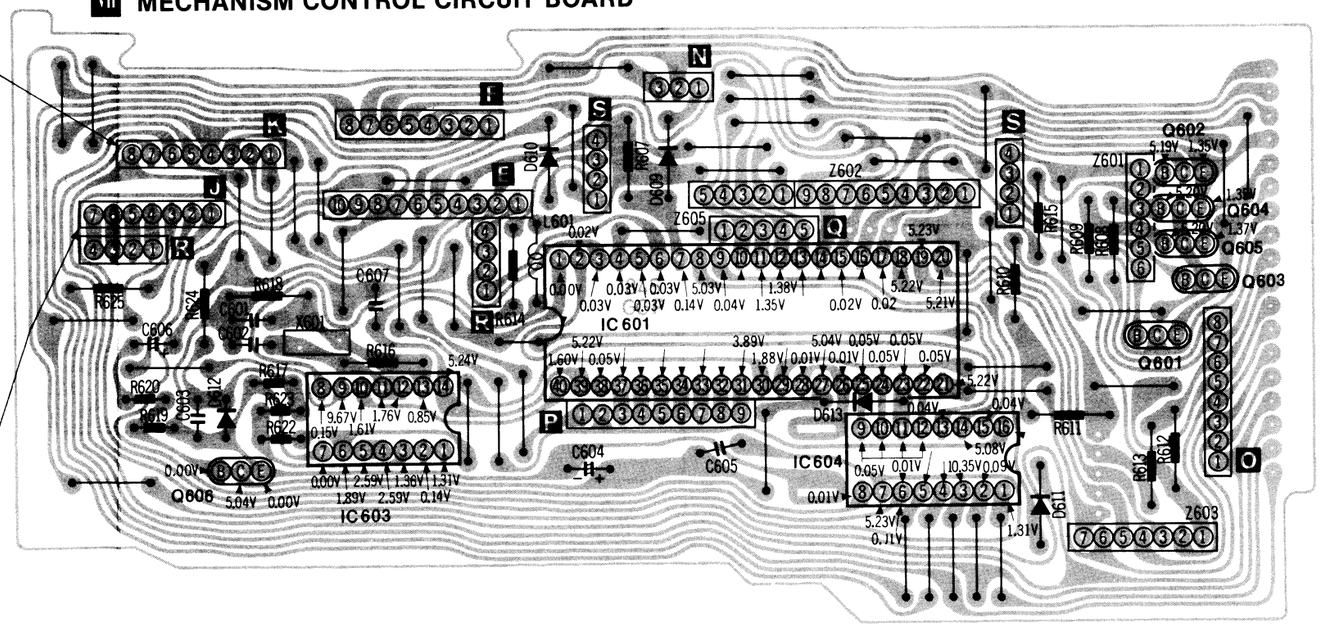
(TO MECHANISM CONTROL CIRCUIT BOARD)
CONNECTOR K

1	AC BOLTAGE (50/60Hz)
2	GROUND
3	B – bias (– 14V)
4	B + bias (+ 14V)
5	B + bias (+ 10.5V)
6	RECORD COMMAND SIGNAL
7	REC MUTE
8	B + bias (+ 5V)

(TO MAIN CIRCUIT BOARD)
CONNECTOR J

1	MUSIC SELECTOR
2	PLAYBACK COMMAND SIGNAL
3	CUE/REVIEW MUTE
4	MUTING COMMAND SIGNAL
5	BIAS OSCILLATOR
6	AUTO TAPE SELECTOR (CrO_2)
7	AUTO TAPE SELECTOR (Metal)

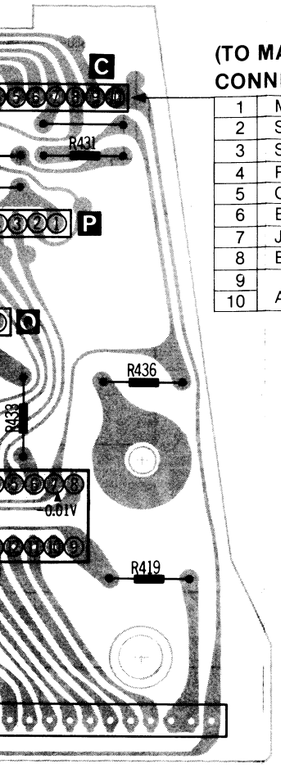
VII MECHANISM CONTROL CIRCUIT BOARD



NOTES:
- The circuit shown in [ ] on the conductor side indicates printed circuit on the back side of the printed circuit board.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position.
  For measurement, use VTVM.

- **This circuit board diagram may be modified at any time with the development of new technology.**

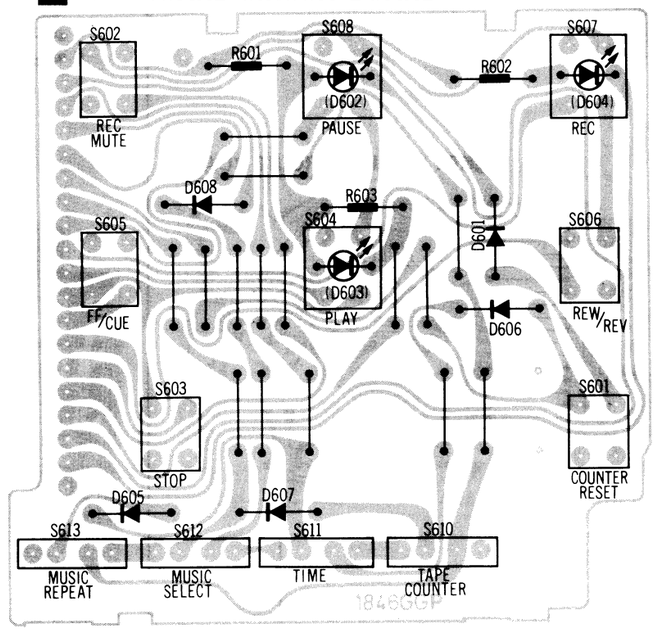
N



(TO MAIN CIRCUIT BOARD)
CONNECTOR C

1	MIC SIGNAL IN
2	SIGNAL IN (R-CH)
3	SIGNAL IN (L-CH)
4	REC MUTE COMMOND
5	GROUND
6	B + bias (10.5V)
7	J Bar
8	B – bias (– 10.5V)
9	
10	AC VOLTAGE (to FILAMENT)

VIII KEY BOARD CIRCUIT BOARD



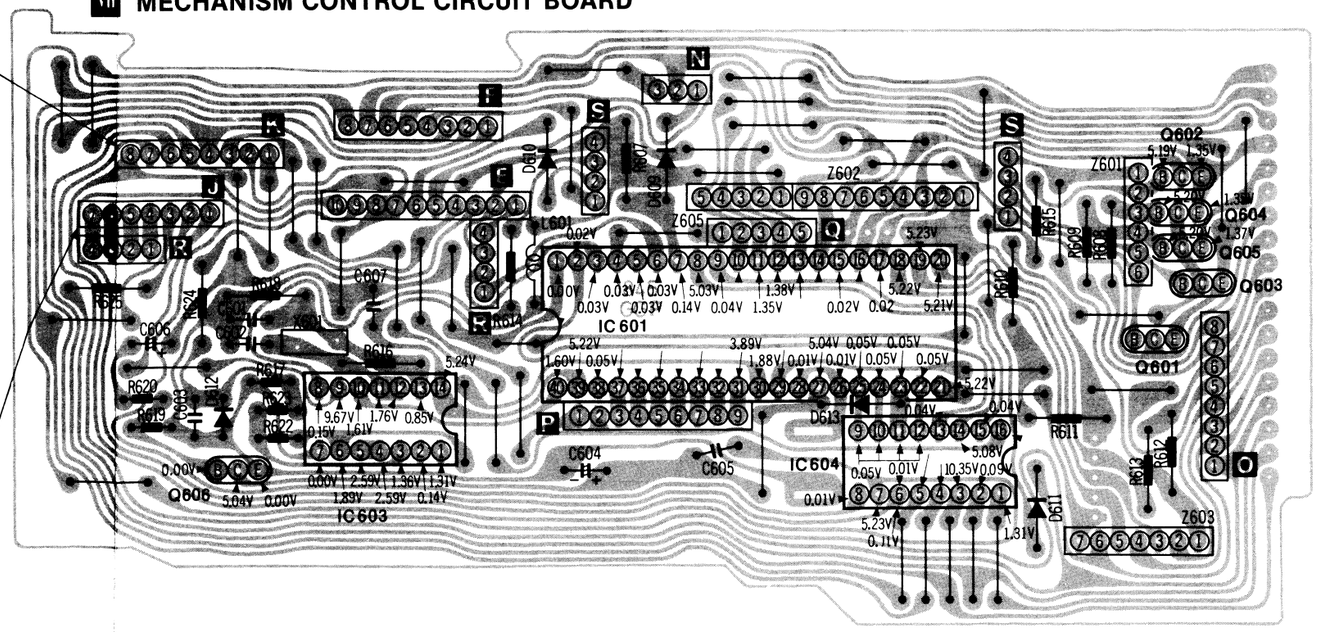
NTROL

60Hz)
ND SIGNAL

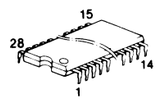
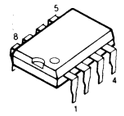
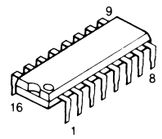
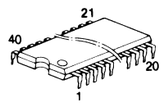
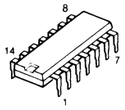
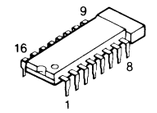
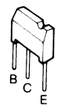
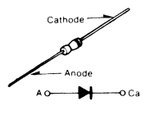
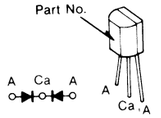
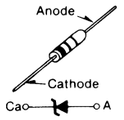
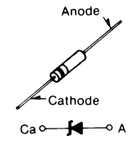
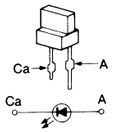
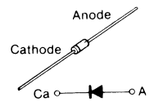
OARD)

AND SIGNAL
E
D SIGNAL
CTOR (CrO_2)
CTOR (Metal)

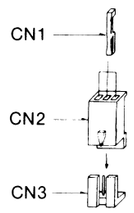
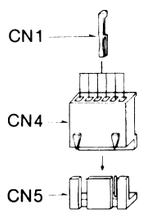
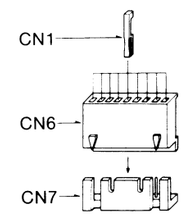
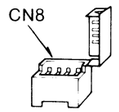
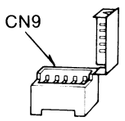
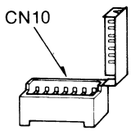
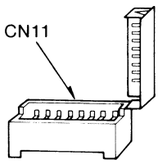
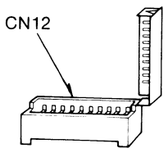
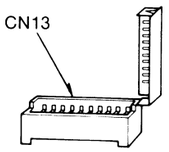
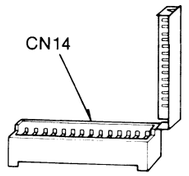
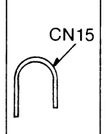
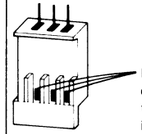
VII MECHANISM CONTROL CIRCUIT BOARD



TERIMINATIONS

 IC401	 IC402	 IC403, 404	 IC601	 IC603
 IC604	 Q401—406, 601—606	 D401, 402, 404—406, 501—504, 601, 605—613	 D403	 D407
 D408	 D602—604	 D612	• The side of component marked (●) or (■) corresponds to pin (1) mark on PC board. Z601 (Z602—604)	

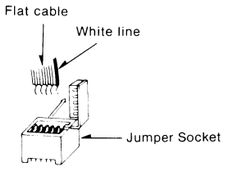
CONNECTORS

 CN1 CN2 CN3	 CN1 CN4 CN5	 CN1 CN6 CN7	 CN8
 CN9	 CN10	 CN11	 CN12
 CN13	 CN14	 CN15	 Removing contacts Push the pawl of a contact in each hole in the housing with a flat bladed screwdriver and pull its lead wire to remove the contact.

WIRING CONNECTION DIAGRAM

Connection of a flat cable

To connect a flat cable, direct the cable so that its white line faces the right side as shown below, then insert the cable into a jumper socket and close the lid of the jumper socket.



IX TIMER CIRCUIT BOARD

X REMOTE CONTROL CIRCUIT BOARD

II SLIDE VOLUME CIRCUIT BOARD

III LE

IV HEADPHO

VII MECHANISM CONTROL CIRCUIT BOARD

VIII KEY BOARD CIRCUIT BOARD

I MAIN CIRCUIT BOARD

BRAKE PLUNGER

TRIGGER PLUNGER

REEL MOTOR

XI HALL IC CIRCUIT BOARD

HALL IC IC501

VI FL METER CIRCUIT BOARD

VII MECHANISM CIRCUIT BOARD

XIII LEAF SWITCH CIRCUIT BOARD

CAPSTAN MOTOR

PILOT LAMP

X REMOTE CONTROL CIRCUIT BOARD

II SLIDE VOLUME CIRCUIT BOARD

III LED CIRCUIT BOARD

IV HEADPHONES CIRCUIT BOARD

VIII KEY BOARD CIRCUIT BOARD

I MAIN CIRCUIT BOARD

VI FL METER CIRCUIT BOARD

V POWER TRANSFORMER CIRCUIT BOARD

T1: AC POWER TRANSFORMER

S802: AC POWER VOLTAGE SELECT SWITCH

F1: FUSE (0.3A)

SPARK KILLER (C801)

S801: POWER SWITCH

AC POWER CORD

* For PX, Asia, Latin America, Middle East and Africa areas.

* For Australia.

G60: NYLON COUPLER

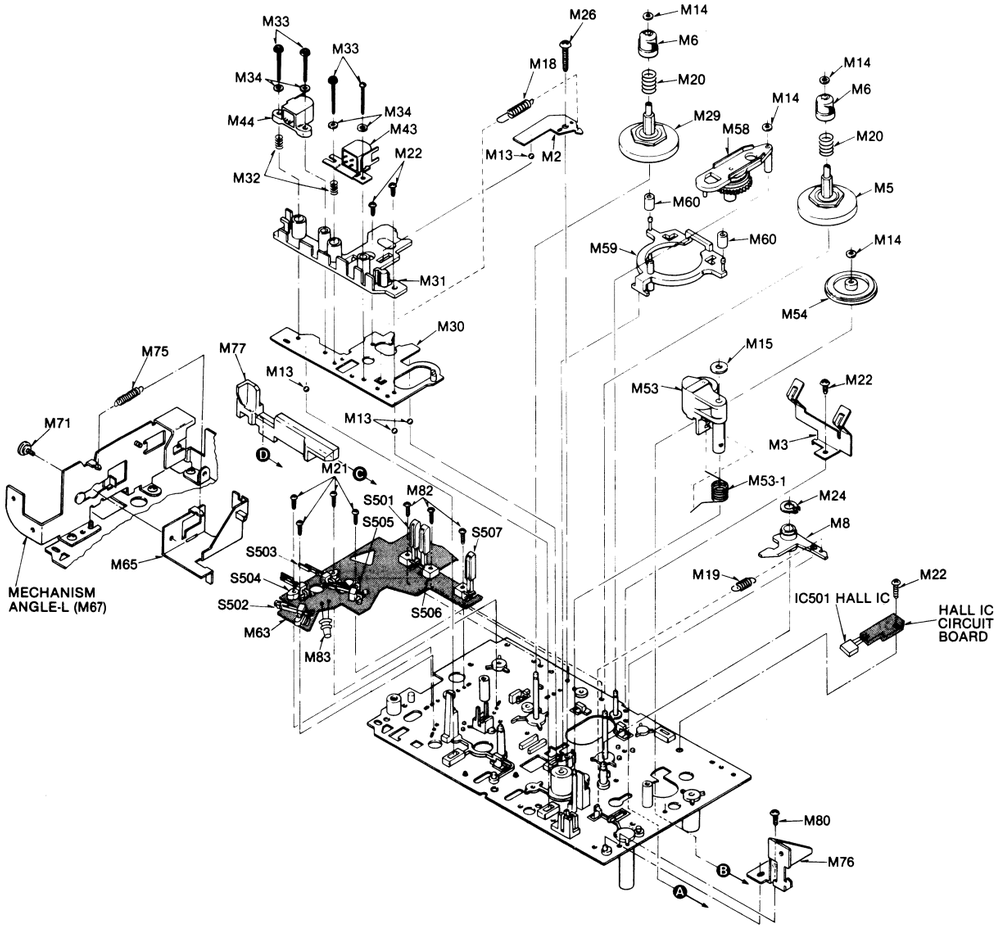
RECORD/PLAYBACK HEAD

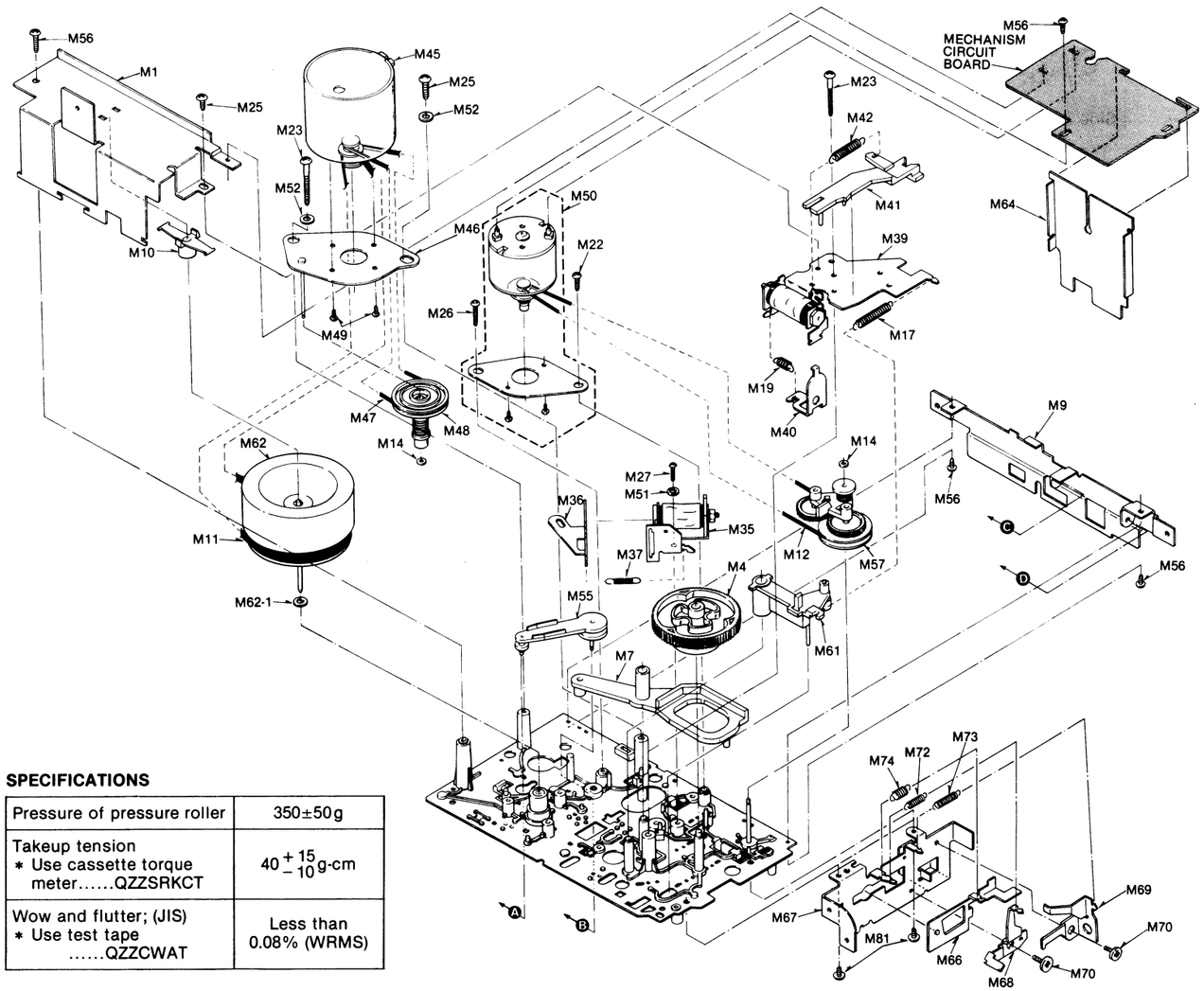
ERASE HEAD

NOTES:

BLK .....Black
BLU .....Blue
BRN.....Brown
GRY.....Gray
GRN .....Green
L. BLU ....Light Blue
NIL.....No Color Mark
ORG .....Orange
PNK.....Pink
RED.....Red
SLD .....Shield Wire
VLT.....Violet
WHT.....White
YEL.....Yellow

MECHANICAL PARTS LOCATION





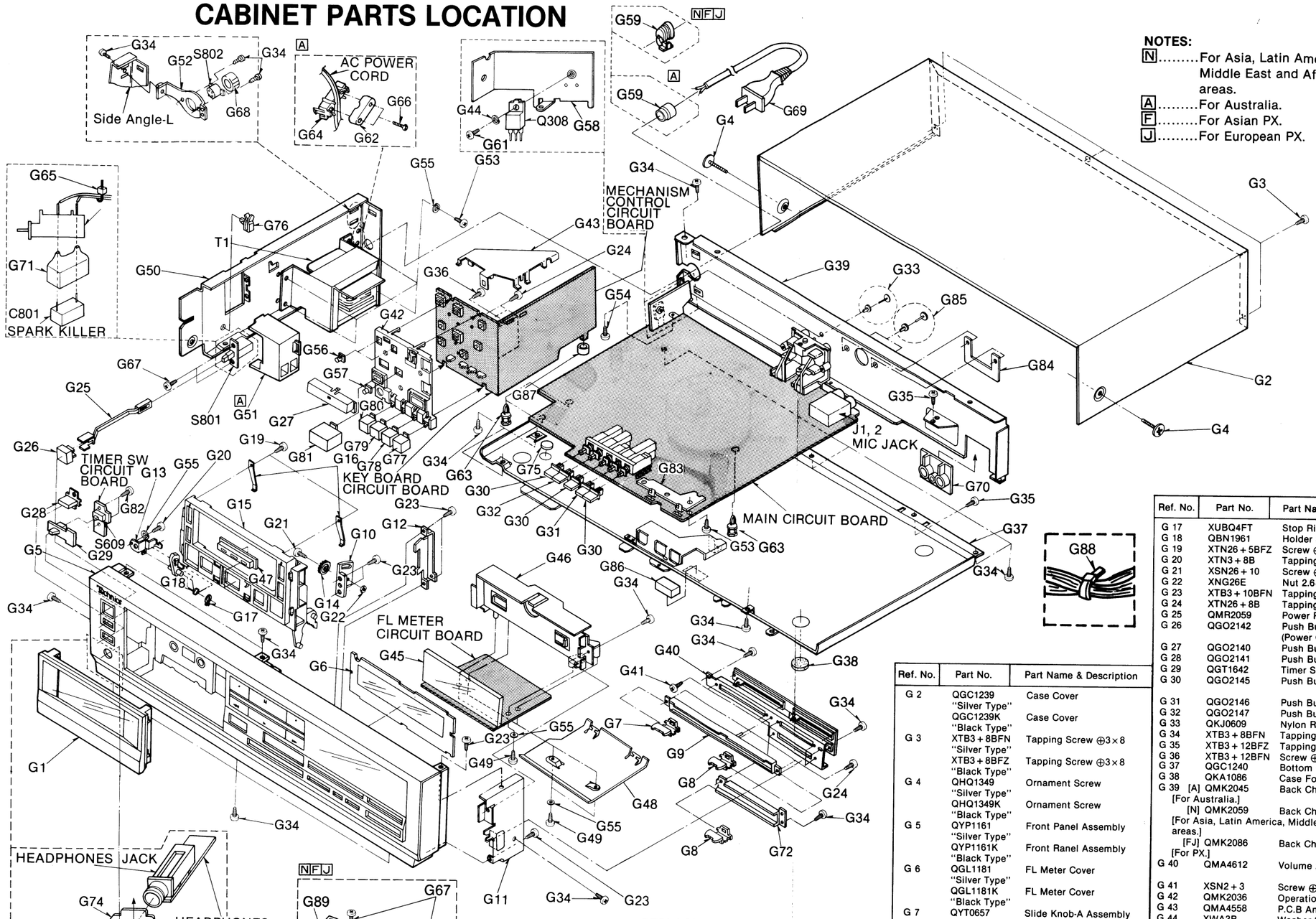
SPECIFICATIONS

Pressure of pressure roller	350±50g
Takeup tension * Use cassette torque meter.....QZZSRKCT	40^{+15}_{-10} g-cm
Wow and flutter; (JIS) * Use test tape .....QZZCWAT	Less than 0.08% (WRMS)

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
		MECHANIAL PARTS
M 1	QMA4528	Flywheel Retainer
M 2	QBP1894	Head Base Plate Spring
M 3	QBP1979	Cassette Pressure Spring
M 4	QXG1059	Main Gear Assembly
M 5	QXD0147	Takeup Reel Table
M 6	QMB1336	Reel Table Hub
M 7	QML3655	Cam Follower
M 8	QML3660	Idler Select Lever
M 9	QMA4543	Mechanism Upper Angle
M 10	QMZ1293	Flywheel Thrust Retaimer
M 11	QDB0333	Flywheel Belt
M 12	QDB0287	Changing Belt
M 13	QDK1012	Steel Ball 2.5φ
M 14	QBW2008	Snap Washer
M 15	QBW2046	Snap Washer
M 17	QBT1725	Lock Lever Spring
M 18	QBT1927	Head Base Plate Spring
M 19	QBT1920	Idler Spring
M 20	QBC1373	Reel Table Spring
M 21	XTN2+6B	Tapping Screw ⊕2×6
M 22	XTN26+6B	Tapping Screw ⊕2.6×6
M 23	XTN3+24B	Tapping Screw ⊕3×24
M 24	XUB4FT	Stop Ring 4φ
M 25	XTN3+10B	Tapping Screw ⊕3×10
M 26	XTN26+12B	Tapping Screw ⊕2.6×12
M 27	XTN26+8B	Tapping Screw ⊕2.6×8
M 29	QDR1164	Supply Reel Table
M 30	QMK1867	Head Base Plate
M 31	QMZ1263	Spacer
M 32	QBC1103	Spring
M 33	XSN2+16	Screw ⊕2×16
M 34	XWG2	Washer 2φ
M 35	QXA1232	Brake Plunger Assembly
M 36	QML3865	Plunger Lever
M 37	QBT1955	Plunger Spring
M 39	QXA1076	Trigger Plunger Assembly
M 40	QML3651	Trigger Plunger Lever
M 41	QML3653	Control Lever
M 42	QBT1278	Record Lock Lever Spring
M 43	QWY4137Z	Record/Playback Head
M 44	QWY2138Z	Erase Head
M 45	QXU0322	Capstan Motor Assembly
M 46	QXA1328	Motor Retainer Assembly
M 47	QDB0332	Takeup Belt
M 48	QXP0621	Takeup Pulley Assembly
M 49	XSN26+3	Screw ⊕2.6×3
M 50	QXU0321	Reel Motor Assembly
M 51	XWG26	Washer 2.6φ
M 52	XWG3	Washer 3φ
M 53	QXL1550	Pressure Roller Assembly
M 53-1	QBN1771	Pressure Roller Spring
M 54	QXI0113	Takeup Idler Assembly
M 55	QXL1603	Idler Lever Assembly
M 56	XTN3+6B	Tapping Screw ⊕3×6
M 57	QXL1408	Swing Gear Assembly
M 58	QXL1604	Fast Wind Gear Assembly
M 59	QML3659	Brake Lever
M 60	QBG1132	Brake Rubber
M 61	QXL1411	Lock Lever Assembly
M 62	QXF0211	Flywheel Assembly
M 62-1	QBW2099	Poly Washer
M 63	QJi1776RR	Leaf Switch P.C.B.
M 64	QTW1315	Insulating Plate
M 65	QXL1600	Lock Lever-C Assembly
M 66	QXL1601	Lock Lever-B Assembly
M 67	QMA4623	Mechanism Angle-L
M 68	QML3976	Eject Lever
M 69	QML3978	Mechanism Lever-A
M 70	QHQ1161	Step Screw
M 71	QHQ1168	Step Screw
M 72	QBT2001	Eject Lever Spring
M 73	QBT1998	Lock Lever-A Spring
M 74	QBT1999	Lock Lever-B Spring
M 75	QBT2000	Lock Lever-C Spring
M 76	QMA4554	Mechanism Angle-R
M 77	QML3972	Auto Tape Select Lever
M 80	XTN26+8B	Tapping Screw ⊕2.6×8
M 81	XTN3+6B	Tapping Screw ⊕3×6
M 82	XTN2+8B	Tapping Screw ⊕2×8
M 83	XAMQ50S12	Pilot Lamp

CABINET PARTS LOCATION



NOTES:

- N.....For Asia, Latin America, Middle East and Africa areas.
- A.....For Australia.
- F.....For Asian PX.
- J.....For European PX.

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
	CABINET PARTS	
G 1	QYF0626 "Silver Type"	Cassette Lid
	QYF0626K "Black Type"	Cassette Lid
G 2	QGC1239 "Silver Type"	Case Cover
	QGC1239K "Black Type"	Case Cover
G 3	XTB3+8BFN "Silver Type"	Tapping Screw ⊕3×8
	XTB3+8BFZ "Black Type"	Tapping Screw ⊕3×8
G 4	QHQ1349 "Silver Type"	Ornament Screw
	QHQ1349K "Black Type"	Ornament Screw
G 5	QYP1161 "Silver Type"	Front Panel Assembly
	QYP1161K "Black Type"	Front Ranel Assembly
G 6	QGL1181 "Silver Type"	FL Meter Cover
	QGL1181K "Black Type"	FL Meter Cover
G 7	QYT0657	Slide Knob-A Assembly
G 8	QYT0658	Slide Knob-B Assembly
G 9	QGG0208 "Silver Type"	Slide Guide
	QGG0208KA "Black Type"	Slide Guide
G 10	QKJ0596	Damper Gear Holding Angle
G 11	QMA4636	Side Angle-R
G 12	QMA4610	Meter Holding Angle
G 13	QMA4552	Cassette Holder Angle-L
G 14	QDG1254	Damper Gear
G 15	QMH2098 "Silver Type"	Cassette Holder
	QMH2098K "Black Type"	Cassette Holder
G 16	QBP1946	Cassette Pressure Spring
G 17	XUBQ4FT	Stop Ring
G 18	QBN1961	Holder Spring
G 19	XTN26+5BFZ	Screw ⊕2.6×5
G 20	XTN3+8B	Tapping Screw ⊕3×8
G 21	XSN26+10	Screw ⊕2.6×10
G 22	XNG26E	Nut 2.6φ
G 23	XTB3+10BFN	Tapping Screw ⊕3×10
G 24	XTN26+8B	Tapping Screw ⊕2.6×8
G 25	QMR2059	Power Rod
G 26	QGO2142	Push Button (Power ON/OFF)
G 27	QGO2140	Push Button (STOP)
G 28	QGO2141	Push Button (for Eject)
G 29	QGT1642	Timer Switch Knob
G 30	QGO2145	Push Button-A
G 31	QGO2146	Push Button-B
G 32	QGO2147	Push Button-C
G 33	QKJ0609	Nylon Ribet
G 34	XTB3+8BFN	Tapping Screw ⊕3×8
G 35	XTB3+12BFZ	Tapping Screw ⊕3×12
G 36	XTB3+12BFN	Screw ⊕3×12
G 37	QGC1240	Bottom Cover
G 38	QKA1086	Case Foot
G 39 [A]	QMK2045 [For Australia.]	Back Chassis
[N]	QMK2059 [For Asia, Latin America, Middle East and Africa areas.]	Back Chassis
[FJ]	QMK2086 [For PX.]	Back Chassis
G 40	QMA4612	Volume Angle
G 41	XSN2+3	Screw ⊕2×3
G 42	QMK2036	Operation Chassis
G 43	QMA4558	P.C.B Angle
G 44	XWA3B	Washer 3φ
G 45	QSiFM006F	FL Meter
G 46	QKJ0632	Meter Holder
G 47	QVDLS003M	LED P.C.B (with D701, 702 and 703)
G 48	QTS1602	FL Meter Shild Plate
G 49	XTN3+10B	Tapping Screw ⊕3×10
G 50	QMA4635	Side Angle-L
G 51 [A]	QKJ0598 [For Australia.]	Switch Cover (for S801)
G 52	QMA4603	Switch Angle (for S802)
G 53	XTN3+6B	Tapping Screw ⊕3×6
G 54	XSN3+6S	Screw ⊕3×6
G 55	XWG3	Washer 3φ
G 56	QKJ0634	LED Cover-A
G 57	QKJ0635	LED Cover-B
G 58	QTH1178	Heat Sink
G 59 [A]	QBJ1425 [For Australia.]	Cord Bushing
[NFJ]	QTD1129 [For PX. For Asia, Latin America, Middle East and Africa areas.]	Cord Bushing
G 60 [A] ⚠	QJT1079 [For Australia.]	Nylon Coupler
G 61	XSN3+8S	Screw ⊕3×8
G 62 [A]	QTD1164 [For Australia.]	Cord Clamper-A
G 63	QKJ0608	Spacer (for P.C.B)
G 64 [A]	QTD1322 [For Australia.]	Cord Clamper-B
G 65	QTD1315	Nylon Binder
G 66 [A]	XTN3+24B [For Australia.]	Tapping Screw ⊕3×24
G 67	XTN3+6B	Tapping Screw ⊕3×6
G 68	QTWM0026	Switch Cover (for S802)
G 69 [A] ⚠	SJA23 [For Australia.]	AC Power Cord
[NFJ] ⚠	RJA52YA-K [For PX. For Asia, Latin America, Middle East and Africa areas.]	AC Power Cord
G 70	QGK3355	MIC Cover
G 71	QTW1195	Spark Killer Cover
G 72	QGG0219 "Silver Type"	Slide Guide
	QGG0219K "Black Type"	Slide Guide
G 73	QMA4624	Headphones Holding Plate
G 74	QMA4614	Headphones Angle
G 75	QTW1336	Insulator Sheet
G 76	QKJ0648	Cord Clamper
G 77	QGO2211	Push Button (Repeat)
G 78	QGO2214	Push Button (Music Select)
G 79	QGO2213	Push Button (Time Counter)
G 80	QGO2212	Push Button (Tape Counter)
G 81	QGO2210	Push Button (Counter Reset)
G 82	XTN26+6B	Tapping Screw ⊕2.6×6
G 83	QMA4613	P.B Holding Angle (A)
G 84	QMA4645	Remote Control Angle
G 85	QKJ0661	Nylon Ribet
G 86	QBM1333	Rubber Cushion
G 87	QBM1332	Cap
G 88	QTD1316	Nylon Binder
G 89 [NFJ]	QMA3418 [For PX. For Asia, Latin America, Middle East and Africa areas.]	Fuse Angle
G 90 [NFJ] ⚠	QTF1056 [For PX. For Asia, Latin America, Middle East and Africa areas.]	Fuse Holder
	ACCESSORIES	
A 1 [NA]	QQT3448	Instruction Book
[FJ]	QQT3521 [For Australia, Asia, Latin America, Middle East and Africa areas.] [For PX.]	Instruction Book
A 2	QEB0125	Connection Cord
A 3 [N] ⚠	QJP0603S [For Asia, Latin America, Middle East and Africa areas.]	AC Plug Adaptor
	PACKINGS	
P 1 [A]	QPN4438 [For Australia.]	Inside Carton
[N]	QPN4457 [For Asia, Latin America, Middle East and Africa areas.]	Inside Carton
[FJ]	QPN4456 [For PX.]	Inside Carton
P 2	QPA0701	Cushion-R
P 3	QPA0702	Cushion-L
P 4	QPS0434	Pad
P 5	QPA0712	Spacer
P 6	XZB40X60A02	Poly Sheet (for Unit)
P 7	QPC0072	Poly Sheet (for AC Power Cord)

ARD
H.M
N NK A AK F FK J JK
Printed in Japan